DOCUMENT RESUME

ED 269 446 TM 860 280

AUTHOR Rachal, Janella
TITLE State-Funded Compensatory/Remedial Program Final Evaluation, 1984-85. Longitudinal Effects.
INSTITUTION Louisiana State Dept. of Education, Baton Rouge. Office of Research and Development.
PUB DATE Aug 85
NOTE 102p.; For a related document, see TM 860 279.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Analysis of Covariance; *Basic Skills; Compensatory Education; Elementary Education; Elementary School Students; *Grade Repetition; Language Arts; Longitudinal Studies; *Minimum Competency Testing; Performance Factors; *Program Effectiveness; Program Evaluation; Remedial Mathematics; *Remedial Programs; Scores; *State Programs; Student Promotion; Testing Programs
IDENTIFIERS *Louisiana; Louisiana Basic Skills Test

ABSTRACT

The longitudinal effects of Louisiana's Compensatory/Remedial Program upon student performance were assessed using data from four administrations of the Basic Skills Test (BST) between 1982 and 1985. Language arts and mathematics tests were administered in grades 2 through 5. Scores increased slightly between 1982 and 1984, and declined in 1985; therefore the number of students qualifying for the Compensatory/Remedial Program also changed. The BST played a limited role in decisions to promote or retain students. Of students who failed the grade 2 BST, 25 percent were never retained during the next four years, 66 percent were retained once, and 9 percent were retained twice. About half failed the BST two or more times in four years. It was concluded that the combination of retention and remediation did more to alleviate basic skills deficiencies than did either retention or remediation alone. This combination was most effective early in the student's educational career. Recommendations concerning the provision of remedial services are included. (GDC)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED269446

August 1985

# Accountability Development Evaluation Management Information Systems Research

## 1984-85 STATE-FUNDED COMPENSATORY/ REMEDIAL PROGRAM FINAL EVALUATION: LONGITUDINAL EFFECTS

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

J. Rachal

S. Ebarb

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
**Office of Research and Development**
P.O. Box 44064
Baton Rouge, Louisiana 70804
*Thomas G. Clausen, Superintendent*

TM 860 280

LOUISIANA DEPARTMENT OF EDUCATION

This public document was published at a total cost of $219.95; 25 copies of this public document were published in this first printing at a cost of $219.95. The total cost of all printings of this document including reprints, is $219.95. This document was published by the Louisiana Department of Education, P.O. Box 94064, Baton Rouge, Louisiana 70804, to report information about the State-Funded Compensatory/Remedial Program under authority of Louisiana R.S. 17:394-400. This material was printed in accordance with the standards for printing by state agencies established pursuant to R.S. 43:31.

# 1984-85 STATE-FUNDED COMPENSATORY/ REMEDIAL PROGRAM FINAL EVALUATION: LONGITUDINAL EFFECTS

August 1985

PREPARED BY

Janella Rachal
Bureau of Evaluation
Louisiana Department of Education

SUBMITTED TO

William A. Davis, Director
Bureau of Elementary Education

TABLE OF CONTENTS


Page

LIST OF TABLES ..... iv

LIST OF FIGURES ..... vi

EXECUTIVE SUMMARY ..... vii

CHAPTER

1. INTRODUCTION ..... 1
   - Background ..... 1
   - Evaluation Questions ..... 1
   - Evaluation Audiences ..... 2

2. PRESENTATION OF THE DATA AND DISCUSSION OF THE RESULTS ..... 3
   - Introduction ..... 3
   - Evaluation Question 1 ..... 3
     - Grade 2 BST Results ..... 3
     - Grade 3 BST Results ..... 6
     - Grade 4 BST Results ..... 6
     - Grade 5 BST Results ..... 6
   - Evaluation Question 2 ..... 13
     - Qualification Rates ..... 13
   - Evaluation Question 3 ..... 13
     - Introduction ..... 13
     - 1982-85 BST Performance by Subgroup ..... 15
       - Retained 83; Retained 84; Retained 85 ..... 15
       - Retained 83; Retained 84; Promoted 85 ..... 18
       - Retained 83; Promoted 84; Retained 85 ..... 18
       - Retained 83; Promoted 84; Promoted 85 ..... 19
       - Promoted 83; Retained 84; Retained 85 ..... 19
       - Promoted 83; Retained 84; Promoted 85 ..... 20
       - Promoted 83; Promoted 84; Retained 85 ..... 21
       - Promoted 83; Promoted 84; Promoted 85 ..... 21
   - Summary of 1982-85 BST Standard Attainment Rates of Initial 1982 Qualifiers ..... 22
     - Introduction ..... 22
     - Retained 1982-83 Group ..... 22
     - Promoted 1982-83 Group ..... 24
     - Retained 1982-83; Retained 1983-84 Group ..... 24
     - Retained 1982-83; Promoted 1983-84 Group ..... 24
     - Promoted 1982-83; Retained 1983-84 Group ..... 25
     - Promoted 1982-83; Promoted 1983-84 Group ..... 25
     - Retained 1982-83; Retained 1983-84; Retained 1984-85 Group ..... 25
     - Retained 1982-83; Retained 1983-84; Promoted 1984-85 Group ..... 26
     - Retained 1982-83; Promoted 1983-84; Retained 1984-85 Group ..... 26
     - Retained 1982-83; Promoted 1983-84; Promoted 1984-85 Group ..... 26

Table of Contents (cont'd.)


Page

Promoted 1982-83; Retained 1983-84; Retained 1984-85 Group ..... 26
Promoted 1982-83; Retained 1983-84; Promoted 1984-85 Group ..... 27
Promoted 1982-83; Promoted 1983-84; Retained 1984-85 Group ..... 27
Promoted 1982-83; Promoted 1983-84; Promoted 1984-85 Group ..... 27
Comparison of 1985 BST Results Among Initial 1982 Qualifiers Tested at Comparable BST Levels ..... 28
Grade 3 BST Results ..... 28
Language Arts ..... 28
Mathematics ..... 31
Grade 4 BST Results ..... 32
Language Arts ..... 32
Mathematics ..... 35
Evaluation Question 4 ..... 37
Introduction ..... 37
1983-85 BST Performance of Grade 2 Qualifiers ..... 40
Retained 84; Retained 85 ..... 40
Retained 84; Promoted 85 ..... 40
Promoted 84; Retained 85 ..... 41
Promoted 84; Promoted 85 ..... 41
Promotion and BST Attainment History of 1983 Grade 2 Qualifiers ..... 42
Comparison of 1985 Grade 3 BST Results Among 1983 Grade 2 Qualifiers ..... 44
Language Arts ..... 44
Mathematics ..... 46
1983-85 BST Performance of Grade 3 Qualifiers ..... 46
Retained 84; Retained 85 ..... 46
Retained 84; Promoted 85 ..... 49
Promoted 84; Retained 85 ..... 49
Promoted 84; Promoted 85 ..... 50
Promotion and BST Attainment History of 1983 Grade 3 Qualifiers ..... 51
Comparison of 1985 Grade 4 BST Results Among 1983 Grade 3 Qualifiers ..... 53
Language Arts ..... 53
Mathematics ..... 55
Evaluation Question 5 ..... 56
Introduction ..... 56
1984-85 BST Performance of Grade 2 Qualifiers ..... 56
Retained 85 ..... 56
Promoted 85 ..... 59
1984-85 BST Performance of Grade 3 Qualifiers ..... 59
Retained 85 ..... 59
Promoted 85 ..... 62
1984-85 BST Performance of Grade 4 Qualifiers ..... 62
Retained 85 ..... 62
Promoted 85 ..... 62

Table of Contents (cont'd.)


Page

Summary of 1984-85 BST Attainment Rates for 1984 Compensatory/Remedial Program ..... 62
Grade 2 Qualifiers ..... 62
Grade 3 Qualifiers ..... 64
Grade 4 Qualifiers ..... 65
Discussion of the Results ..... 66

3. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS ..... 70
Findings and Conclusions ..... 70
Recommendations ..... 72

LIST OF TABLES


| Table | | Page |
|---|---|---|
| 1. | 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1982 Grade 2 BST | 16 |
| 2. | Analysis of Covariance, Language Arts Performance of 1982 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 3 BST in 1985 | 30 |
| 3. | Analysis of Covariance, Mathematics Performance of 1982 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 3 BST in 1985 | 33 |
| 4. | Analysis of Covariance, Language Arts Performance of 1982 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 4 BST in 1985 | 34 |
| 5. | Analysis of Covariance, Mathematics Performance of 1982 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 4 BST in 1985 | 36 |
| 6. | 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1983 Grade 2 BST | 38 |
| 7. | Analysis of Covariance, Language Arts Performance of 1983 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 3 BST in 1985 | 39 |
| 8. | Analysis of Covariance, Mathematics Performance of 1983 Grade 2 Compensatory/ Remedial Program Qualifiers Who Took the Grade 3 BST in 1985 | 47 |
| 9. | 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1983 Grade 3 BST | 48 |
| 10. | Analysis of Covariance, Language Arts Performance of 1983 Grade 3 Compensatory/ Remedial Program Qualifiers Who Took the Grade 4 BST in 1985 | 54 |

LIST OF TABLES (cont'd.)


Table — Page

11. Analysis of Covariance, Mathematics Performance of 1983 Grade 3 Compensatory/ Remedial Program Qualifiers Who Took the Grade 4 BST in 1985 ..... 57

12. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 2 BST ..... 60

13. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 3 BST ..... 61

14. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 4 BST ..... 63

LIST OF FIGURES


Figure — Page

1. Grade 2 BST Language Arts Results for Regular Education Students: 1982-1985 ..... 4

2. Grade 2 BST Mathematics Results for Regular Education Students: 1982-1985 ..... 5

3. Grade 3 BST Language Arts Results for Regular Education Students: 1983-1985 ..... 7

4. Grade 3 BST Mathematics Results for Regular Education Students: 1983-1985 ..... 8

5. Grade 4 BST Language Arts Results for Regular Education Students: 1984-1985 ..... 9

6. Grade 4 BST Mathematics Results for Regular Education Students: 1984-1985 ..... 10

7. Grade 5 BST Language Arts Results for Regular Education Students: 1985 ..... 11

8. Grade 5 BST Mathematics Results for Regular Education Students: 1985 ..... 12

9. State-Funded Compensatory/Remedial Program Qualification Figures for Regular Education Students: 1982-1985 ..... 14

10. BST Attainment Rates for Initial 1982 Grade 2 Compensatory/Remedial Program Qualifiers ..... 23

11. BST Attainment Rates for Initial 1983 Grade 2 Compensatory/Remedial Program Qualifiers ..... 43

12. BST Attainment Rates for Initial 1983 Grade 3 Compensatory/Remedial Program Qualifiers ..... 52

13. BST Attainment Rates for Initial 1984 Grade 3 Compensatory/Remedial Program Qualifiers: Grades 2-4 ..... 58

# EXECUTIVE SUMMARY

This report represents the final evaluation of the 1984-85 State-Funded Compensatory/Remedial Program. It draws upon data from the four administrations of the Basic Skills Tests (BSTs) between 1982 and 1985 to provide a comprehensive examination of the longitudinal effects of the Compensatory/Remedial Program upon student performance. The report also incorporates the cumulative findings of studies that have been conducted by the Bureau of Evaluation since the initiation of the Compensatory/Remedial Program in 1982. The major findings, conclusions, and recommendations are summarized below.

Several conclusions are not strictly confined to the Compensatory/Remedial Program but reflect upon the overall basic skills effort of which the program is a part. During the four years in which the BST has been in effect, the performance of Louisiana students in the basic skills has shown little change. There has been a slight general increase in average scores on the BST from 1982 to 1984, but a small decline was noted in 1985. The percentage of students failing the BST and thus qualifying for the Compensatory/Remedial Program dropped slightly from 1982 until the current year, when a small increase in the percentage of students failing the test occurred.

The BST appears to play a limited role in the decision about whether to promote or retain students who have not mastered the minimum standards. Among the students who failed the BST when it was first given in 1982, 25 percent have not been retained at all between that time and the present, 66 percent were retained only once, and 9 percent were retained twice.

In looking specifically at the Compensatory/Remedial Program, it appears that the combination of retention and remediation does more to alleviate basic skills deficiencies than does either retention or remediation alone. Additionally, this combination is most effective when it occurs early in the student's educational career. In general, students who were retained immediately after their initial failure on the BST required fewer years of compensatory education during the 1982-85 period. Retention, considered in isolation, had its strongest effect on student performance at the very next administration of the BST. The effect was weaker on later administrations of the test. When the effects of remediation are considered apart from those of retention, students who required only one year of services generally outperformed students who participated in the compensatory/remedial program for two or three years.

Several recommendations are offered on the basis of this evaluation study. The data strongly advise retaining students immediately following their first failure on the BST. In the event that future economic constraints may seriously restrict program funds, resulting in a limit on the number of students who can be served, it is recommended that consideration first be given to exempting students who have been retained or who receive remedial services through some other program.

Current program guidelines should be changed so that an expanded continuum of skills is addressed in remedial instruction, particularly for students who have been promoted upon failing the BST. It is also recommended that students participating in the program be provided the full 70 hours of funded services. Additionally, exit testing should measure the full range of skills addressed during remediation rather than testing each skill in isolation as soon as it has been taught.

Finally, it is recommended that the Bureau of Elementary Education, in conjunction with local school system compensatory/remedial personnel, develop and disseminate models for remedial instruction. This practice would help to further improve the program and would take advantage of the many good programs, materials, and instructional techniques that have resulted from the work of the past four years.

Bureau of Evaluation
August 1985

# 1

# INTRODUCTION

## Background

The State-Funded Compensatory/Remedial Program was begun in Louisiana during the 1982-83 school year. Since the inception of the program, the Bureau of Evaluation within the Office of Research and Development, Louisiana Department of Education, has conducted the state-level evaluation of the program.

This report represents the final evaluation of the 1984-85 State-Funded Compensatory/Remedial Program. It draws upon data from the 1982, 1983, 1984, and 1985 administrations of the Basic Skills Tests to provide a comprehensive look at the longitudinal effects of the program on student performance. This information is intended to assist state and local program staffs in making decisions about the administration and the implementation of the program.

## Evaluation Questions

The evaluation questions addressed within this report include the following:

1. How does student performance on the 1985 Basic Skills Tests compare with 1982, 1983, and 1984 Basic Skills Test performance?

2. How do 1985 State-Funded Compensatory/Remedial Program qualification rates compare with those observed in 1982, 1983, and 1984?

3. What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of initial 1982 qualifiers?

4. What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of 1983 qualifiers?

5. What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of 1984 qualifiers?

## Evaluation Audiences

This study was conducted by the Bureau of Evaluation as part of its comprehensive evaluation of the State-Funded Compensatory/Remedial Program. Its purpose is to provide information to policy makers, program administrators, and program staff about the longitudinal effects of the program on student performance. The major audiences for this report include the following:

- The State Superintendent of Education and his Cabinet
- The State Department of Education Compensatory/Remedial Program Staff
- The State Board of Elementary and Secondary Education
- The Louisiana Legislature
- The local Superintendents of Schools
- The local school system Compensatory/Remedial Program staffs

# 2

## PRESENTATION OF THE DATA AND DISCUSSION OF THE RESULTS

### Introduction

The data sources used in the preparation of this report were the student level results of the 1982, 1983, 1984, and 1985 administrations of the Basic Skills Tests. A complete description of each grade level test and the procedures used in collecting and analyzing the resultant data were presented in earlier evaluation reports.

The data collected in this final evaluation of the 1984-85 State-Funded Compensatory/Remedial Program are presented in response to the five major evaluation questions addressed by the study.

### Evaluation Question 1: How does student performance on the 1985 Basic Skills Tests compare with 1982, 1983, and 1984 Basic Skills Test performance?

#### Grade 2 BST Results

The 1982-1985 Basic Skills Test (BST) results for regular education students tested in grade 2 language arts and mathematics are shown in Figures 1 and 2. The number of students tested (N) is shown for each year, and the average BST score is recorded above each bar.

As illustrated in the figures, the number of regular education students tested each year has increased slightly in both language arts (N = 60,128 in 1985) and mathematics (N = 60,135 in 1985). The language

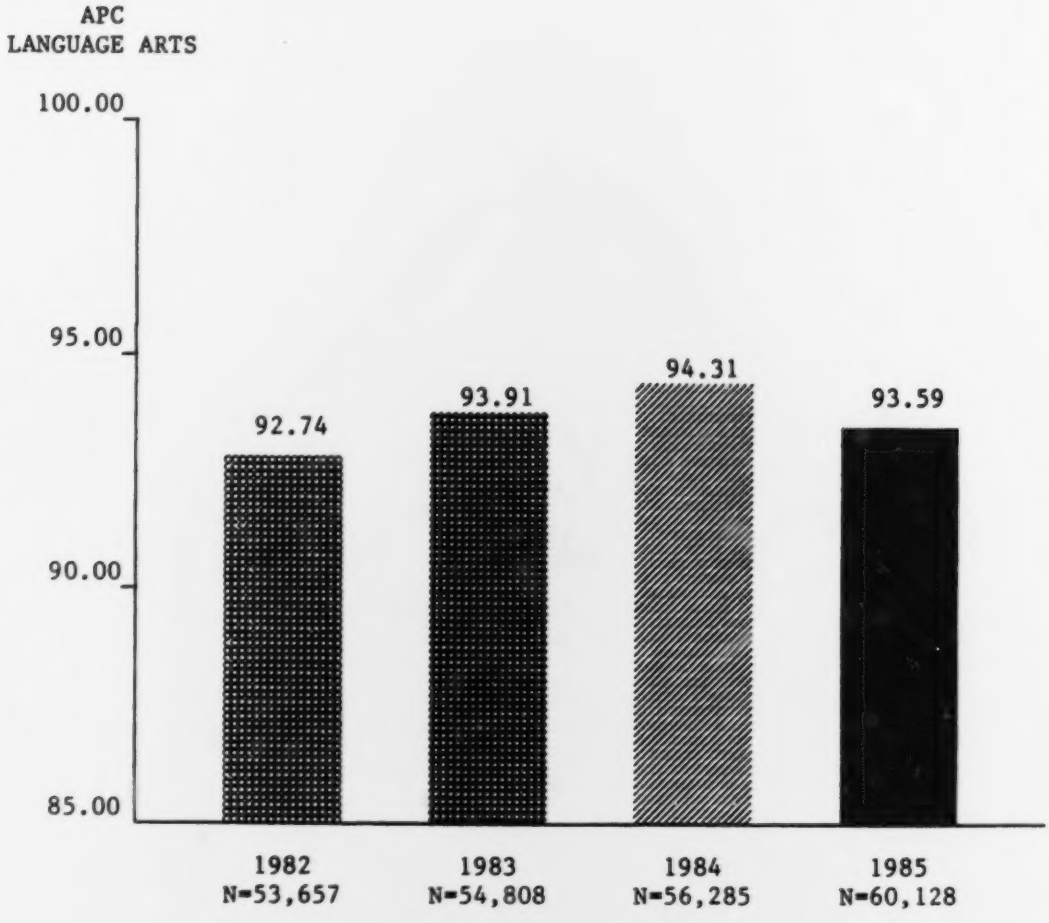


FIGURE 1. GRADE 2 BST LANGUAGE ARTS RESULTS FOR REGULAR EDUCATION STUDENTS: 1982-1985

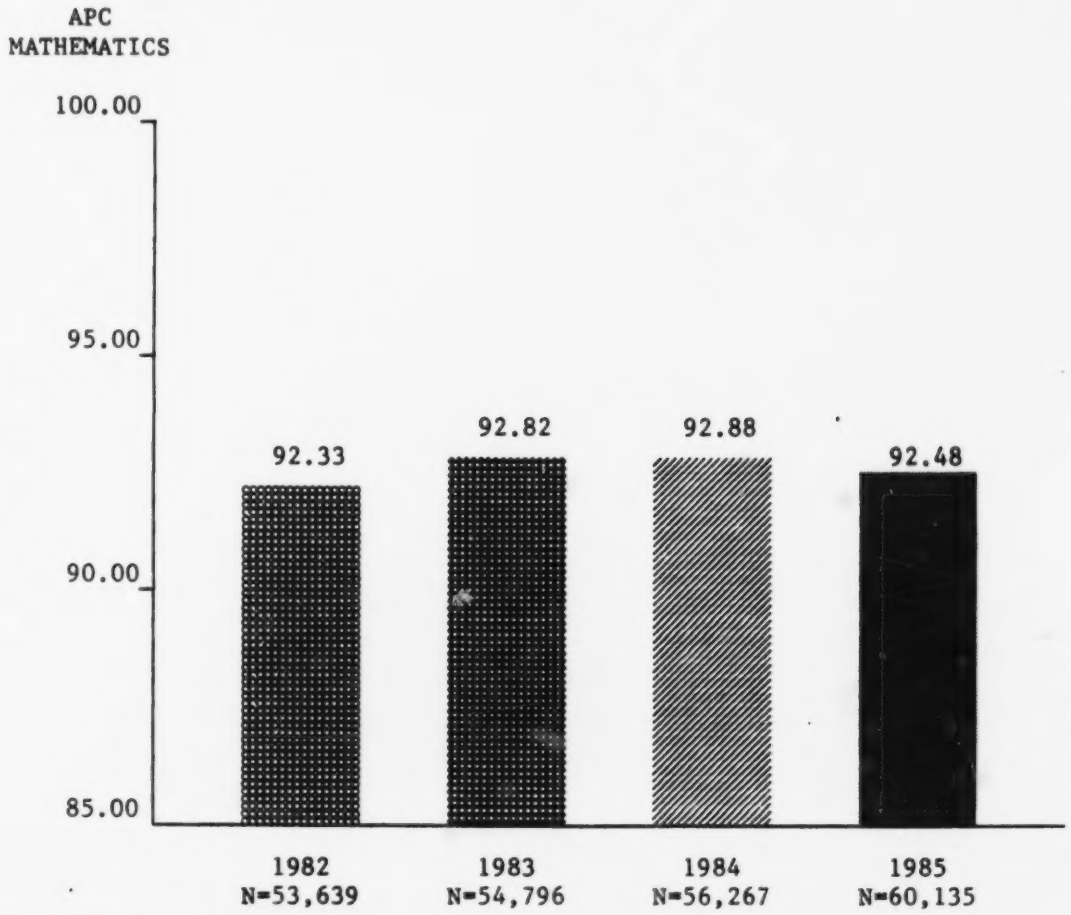


FIGURE 2. GRADE 2 BST MATHEMATICS RESULTS FOR REGULAR EDUCATION STUDENTS: 1982-1985

arts and mathematics BST means have also increased slightly over those observed the initial year. This upward trend in mean scores is consistent with that normally observed when a testing program is introduced. There is no immediate explanation for the slight decline shown in 1985, but this year does show a greater increase in the number of students tested than is shown for other years. And it is possible that some of these 1985 students are those who would have been classified as special education-slow learners in earlier years, and thus not included in regular education reports.

## Grade 3 BST Results

The mean scores recorded over the three years' administration of the Grade 3 BST are shown in Figures 3 and 4. As in grade 2, the number of students has increased since the first year of testing. The grade 3 language arts and mathematics mean scores have also increased slightly from those of the first year.

## Grade 4 BST Results

The results of the two years' testing on the Grade 4 BST are shown in Figures 5 and 6. As in grades 2 and 3, the number of students tested has increased as have the language arts and mathematics BST mean scores.

## Grade 5 BST Results

The results of the first administration of the Grade 5 BST are shown in Figures 7 and 8. These indicate that 49,424 students were tested in language arts and 49,399 were tested in mathematics. The language arts mean score was 85.05 percent correct, while that in mathematics was 87.10.

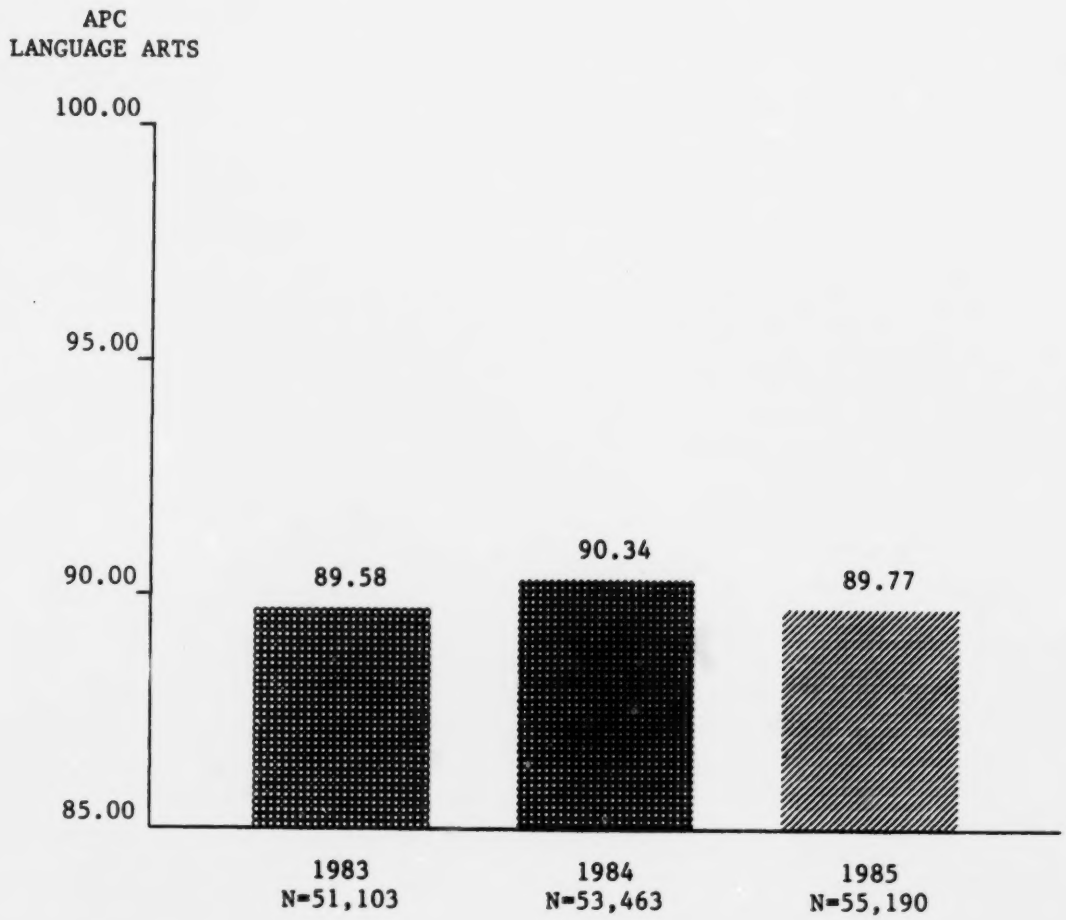


FIGURE 3. GRADE 3 BST LANGUAGE ARTS BST RESULTS FOR REGULAR EDUCATION STUDENTS: 1983-1985

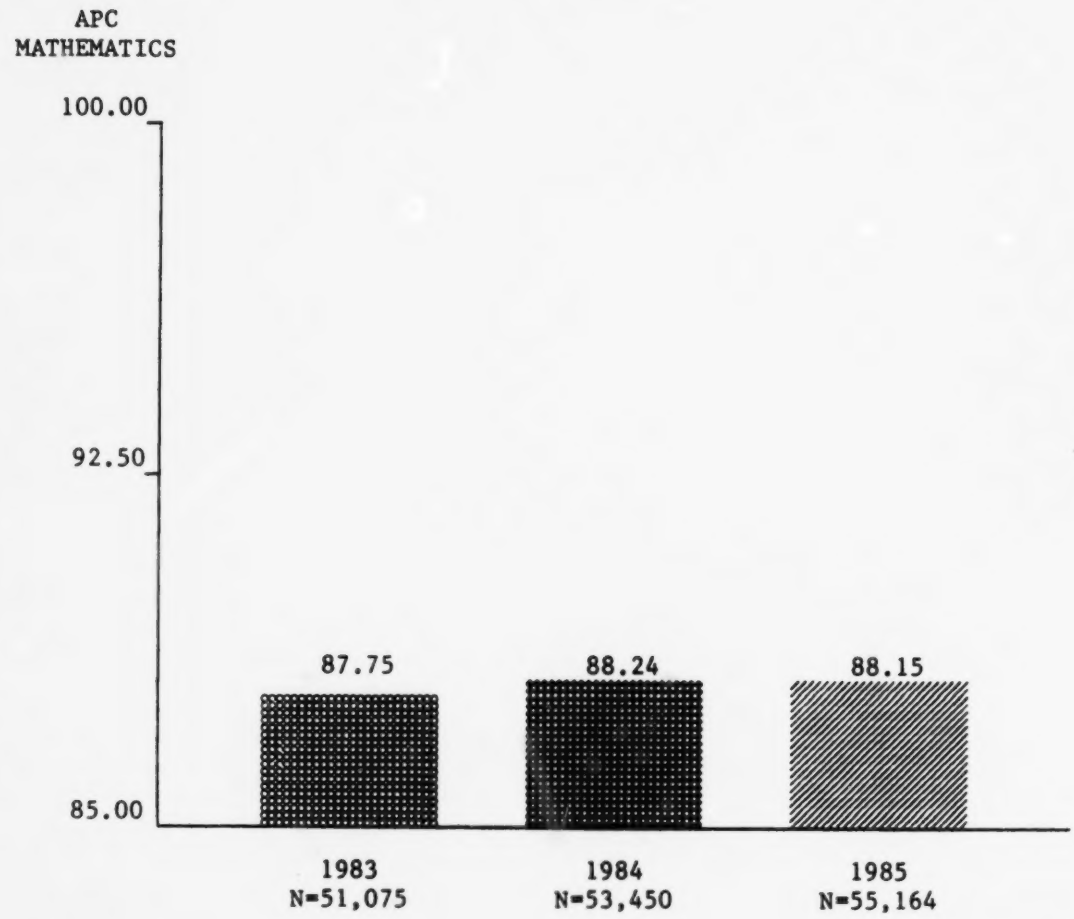


FIGURE 4. GRADE 3 BST MATHEMATICS RESULTS FOR REGULAR EDUCATION STUDENTS: 1983-1985

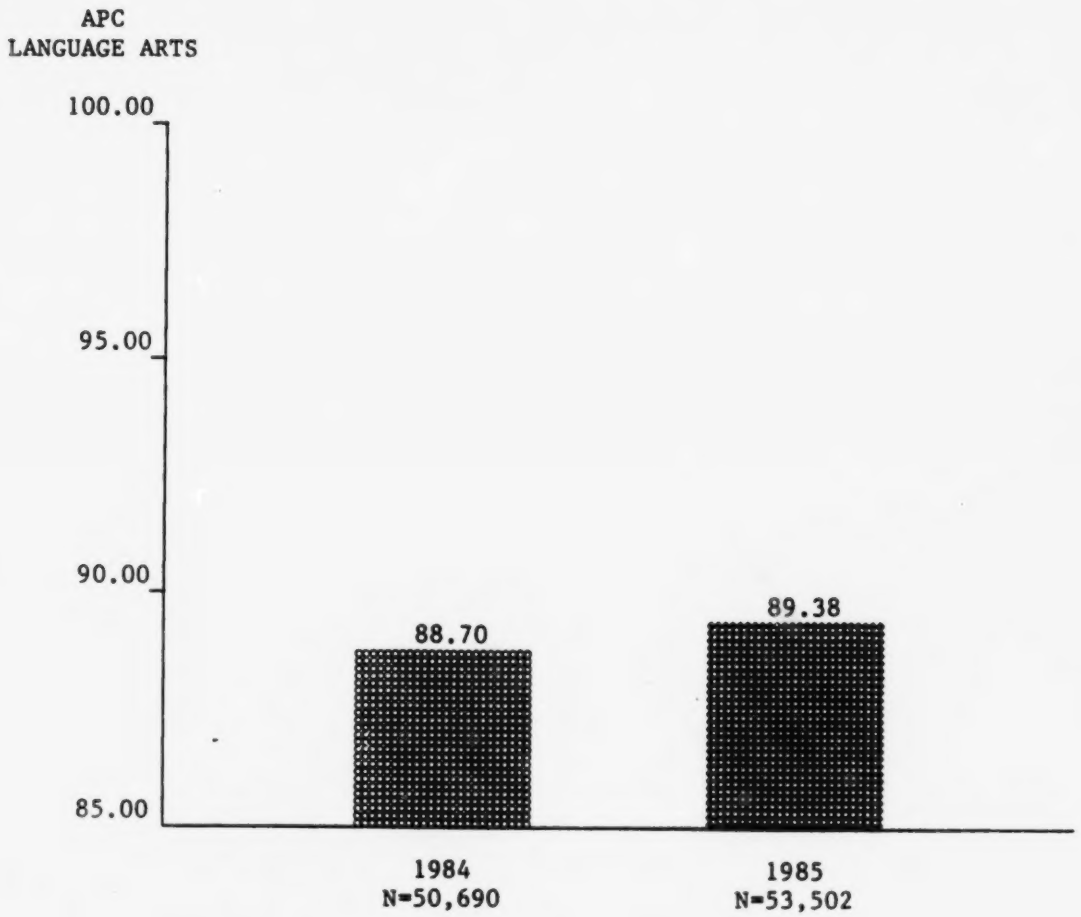


FIGURE 5. GRADE 4 BST LANGUAGE ARTS RESULTS FOR REGULAR EDUCATION STUDENTS: 1984-1985

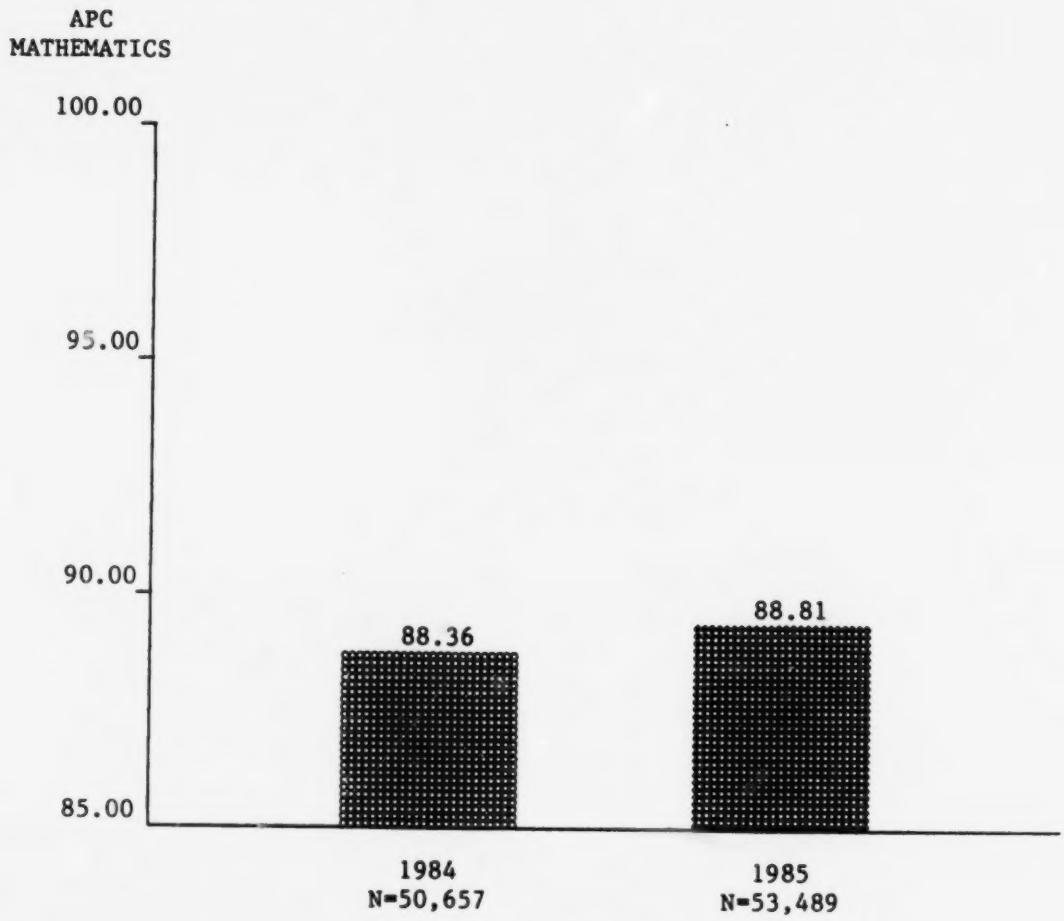


FIGURE 6. GRADE 4 BST MATHEMATICS RESULTS FOR REGULAR EDUCATION STUDENTS: 1984-1985

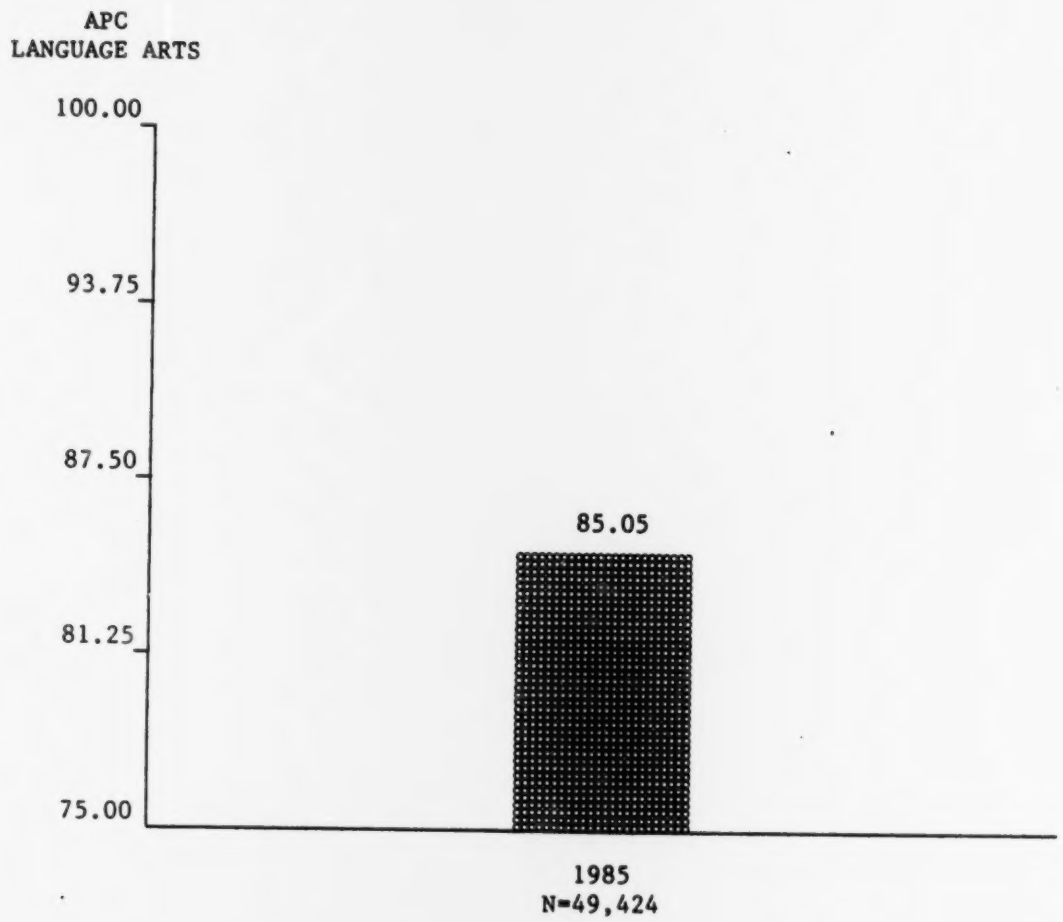


FIGURE 7. GRADE 5 BST LANGUAGE ARTS RESULTS FOR REGULAR EDUCATION STUDENTS: 1985

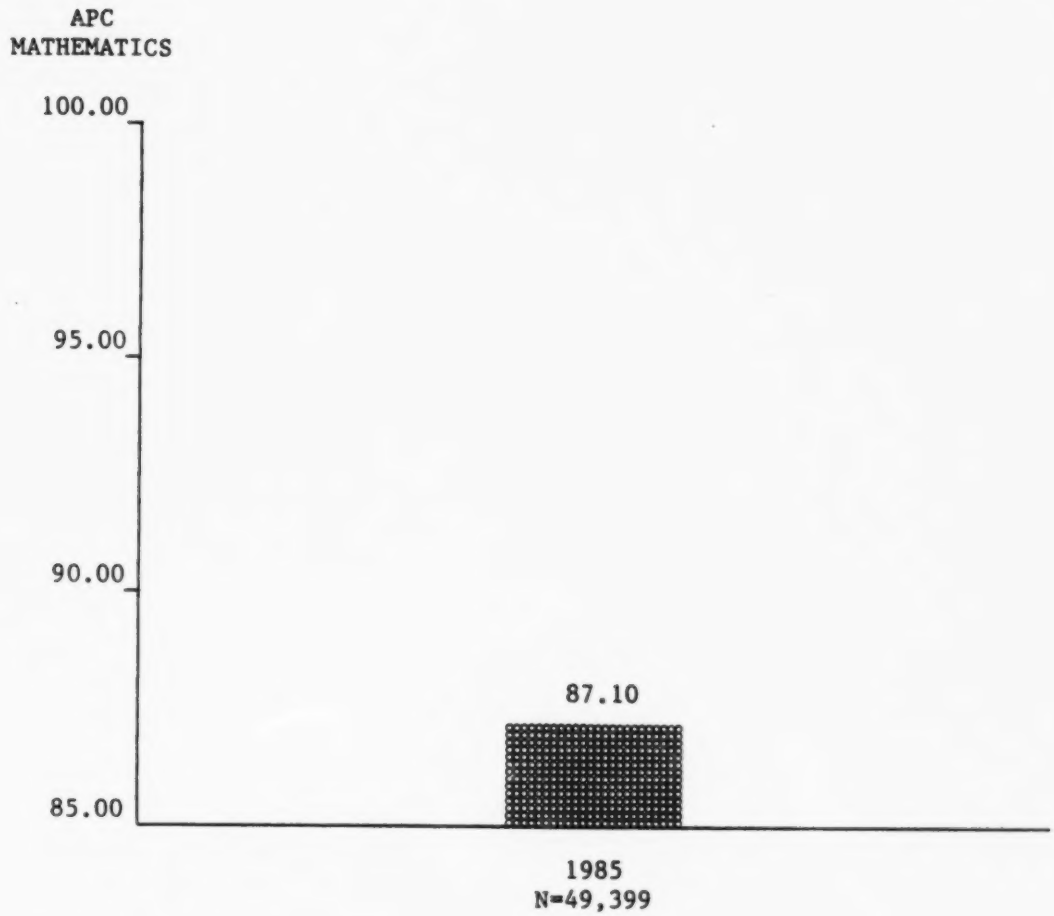


FIGURE 8. GRADE 5 BST MATHEMATICS RESULTS FOR REGULAR EDUCATION STUDENTS: 1985

Evaluation Question 2: How do 1985 State-Funded Compensatory/Remedial Program qualification rates compare with those observed in 1982, 1983, and 1984?

## Qualification Rates

The qualification rates for the State-Funded Compensatory/Remedial Program over the 1982-1985 period are shown in Figure 9. The number (N) and percentage of regular education students who qualified for the program since its inception in 1982 are illustrated for each grade level involved.

Among the grade 2 regular education students tested each year, the qualification rate has dropped from 9.7 percent in 1982 to 6.9 percent in 1985. The grade 3 rate has also dropped, from 15.7 percent in 1983 to 14.4 percent in 1985. The qualification rate on the grade 4 BST dropped from 20.8 percent in 1984 (when the minimum performance standard was 80 percent correct) to 12.6 percent in 1985 (the standard was reset at 75 percent correct). The qualification rate on the first administration of the Grade 5 BST in 1985 was 21.5 percent (the standard was 75 percent correct).

Evaluation Question 3: What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of initial 1982 qualifiers?

## Introduction

The major focus of this study is on the longitudinal effects of the State-Funded Compensatory/Remedial Program on subsequent BST performance. In order to measure this effect, the initial group of compensatory education qualifiers identified on the 1982 Grade 2 BST was

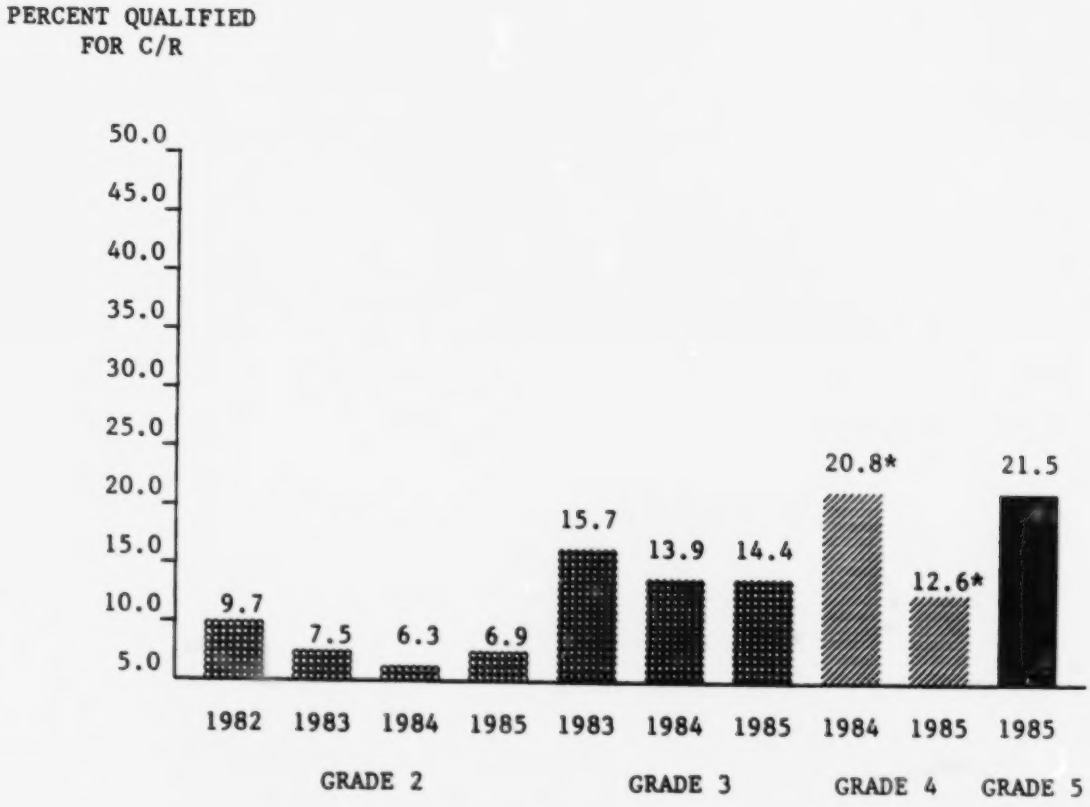


FIGURE 9. STATE-FUNDED COMPENSATORY/REMEDIAL PROGRAM QUALIFICATION FIGURES FOR REGULAR EDUCATION STUDENTS: 1982-1985

*The minimum performance standard for the Grade 4 BST was changed from 80 percent correct in 1984 to 75 percent correct in 1985.

tracked through the 1983, 1984, and 1985 administrations of the test. Data from the four years of testing were matched by computer across the state by student names and birthdates. The final merged files consisted of only those students for whom the key identifying variables were present for each of the administrations of the BST.

From the original 1982 group of compensatory/remedial qualifiers, two subgroups emerged in 1983, based on whether the participants were promoted or retained for the 1982-83 school year. Each subgroup was further subdivided for the 1984 testing, again on the basis of promotion/retention, so that four distinct categories emerged. These four categories were further subdivided for the 1985 testing; eight groups emerged, again on the basis of promotion/retention status.

The effect of the State-Funded Compensatory/Remedial Program on the 1985 language arts and mathematics BST performance of the initial group of language arts qualifiers is shown in Table 1. For each area (language arts and mathematics), the number of students tested (N), the appropriate BST mean score, and the number and percentage of students attaining the minimum standard on the BST are shown by student subgroup.

1982-85 BST Performance by Subgroup

Retained 83; Retained 84; Retained 85

The first section of Table 1 illustrates the 1982, 1983, 1984, and 1985 BST performance of regular education compensatory/remedial students who were retained in grade 2 during both the 1982-83 and 1983-84 school years and then retained again in 1984-85. None of the initial 1982 qualifiers were in this subgroup by the 1985 test administration.

Table 1. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1982 Grade 2 BST

| Student Group | LANGUAGE ARTS N | BST Mean | Scored ≥ 75 N | % | MATHEMATICS N | BST Mean | Scored ≥ 75 N | % |
|---|---|---|---|---|---|---|---|---|
| Ret 83; Ret 84; Ret 85 | 0 | - | - | - | 0 | - | - | - |
| Ret 83; Ret 84; Pro 85 | | | | | | | | |
| 1982 Grade 2 BST | 7 | 56.19 | 0 | 0.00 | 3 | 35.00 | 3 | 0.00 |
| 1983 Grade 2 BST | 6 | 87.78 | 6 | 100.00 | 2 | 86.67 | 2 | 100.00 |
| 1984 Grade 2 BST | 7 | 95.00 | 7 | 100.00 | 3 | 96.67 | 3 | 100.00 |
| 1985 Grade 3 BST | 7 | 77.64 | 5 | 71.43 | 3 | 81.67 | 2 | 66.67 |
| • One year C/R | 7 | 77.64 | 5 | 71.43 | 3 | 81.67 | 2 | 66.67 |
| Ret 83; Pro 84; Ret 85 | | | | | | | | |
| 1982 Grade 2 BST | 90 | 56.52 | 0 | 0.00 | 67 | 60.50 | 0 | 0.00 |
| 1983 Grade 2 BST | 90 | 88.48 | 84 | 93.33 | 66 | 89.67 | 64 | 96.97 |
| 1984 Grade 3 BST | 90 | 65.35 | 31 | 34.44 | 67 | 67.63 | 20 | 29.85 |
| 1985 Grade 3 BST | 89 | 81.35 | 71 | 79.78 | 66 | 84.05 | 57 | 86.36 |
| • One year C/R | 30 | 87.64 | 28 | 93.33 | 20 | 87.60 | 19 | 95.00 |
| • Two years C/R | 54 | 79.95 | 42 | 77.78 | 44 | 84.09 | 38 | 86.36 |
| • Three years C/R | 5 | 58.70 | 1 | 20.00 | 2 | 47.50 | 0 | 0.00 |
| Ret 83; Pro 84; Pro. 85 | | | | | | | | |
| 1982 Grade 2 BST | 489 | 61.69 | 0 | 0.00 | 251 | 63.15 | 0 | 0.00 |
| 1983 Grade 2 BST | 489 | 93.16 | 467 | 95.50 | 251 | 92.27 | 248 | 98.81 |
| 1984 Grade 3 BST | 489 | 84.54 | 425 | 86.91 | 251 | 82.71 | 202 | 80.48 |
| 1985 Grade 4 BST | 488 | 78.77 | 356 | 72.80 | 250 | 77.90 | 166 | 66.14 |
| • One year C/R | 412 | 81.06 | 330 | 80.10 | 199 | 79.87 | 145 | 72.50 |
| • Two years C/R | 67 | 68.51 | 25 | 36.76 | 50 | 70.86 | 21 | 42.00 |
| • Three years C/R | 9 | 50.26 | 1 | 11.11 | 1 | 36.36 | 0 | 0.00 |
| Pro 83; Ret 84; Ret 85 | | | | | | | | |
| 1982 Grade 2 BST | 7 | 65.24 | 0 | 0.00 | 7 | 67.62 | 0 | 0.00 |
| 1983 Grade 3 BST | 7 | 50.16 | 0 | 0.00 | 6 | 56.50 | 0 | 0.00 |
| 1984 Grade 3 BST | 7 | 66.00 | 1 | 14.29 | 7 | 63.57 | 2 | 28.57 |
| 1985 Grade 3 BST | 7 | 85.56 | 6 | 85.71 | 7 | 80.57 | 5 | 71.43 |
| • Two years C/R | 1 | 81.52 | 1 | 100.00 | 3 | 88.00 | 3 | 100.00 |
| • Three years C/R | 6 | 86.23 | 5 | 83.33 | 4 | 75.00 | 2 | 50.00 |

Table 1 (cont'd)

| Student Group | LANGUAGE ARTS N | BST Mean | Scored ≥ 75 N | % | MATHEMATICS N | BST Mean | Scored ≥ 75 N | % |
|---|---|---|---|---|---|---|---|---|
| Pro 83; Ret 84; Pro 85 | | | | | | | | |
| 1982 Grade 2 BST | 163 | 62.99 | 0 | 0.00 | 106 | 66.01 | 0 | 0.00 |
| 1983 Grade 3 BST | 163 | 63.10 | 33 | 20.24 | 105 | 63.30 | 23 | 21.70 |
| 1984 Grade 3 BST | 162 | 84.98 | 142 | 87.12 | 106 | 84.58 | 92 | 86.79 |
| 1985 Grade 4 BST | 162 | 77.40 | 105 | 64.42 | 105 | 77.46 | 69 | 65.09 |
| • One year C/R | 32 | 81.88 | 25 | 78.13 | 24 | 87.69 | 23 | 95.83 |
| • Two years C/R | 112 | 78.25 | 73 | 65.18 | 67 | 76.00 | 43 | 63.24 |
| • Three years C/R | 18 | 64.15 | 7 | 36.84 | 14 | 66.88 | 3 | 21.43 |
| Pro 83; Pro 84; Ret 85 | | | | | | | | |
| 1982 Grade 2 BST | 145 | 62.84 | 0 | 0.00 | 86 | 65.74 | 0 | 0.00 |
| 1983 Grade 3 BST | 145 | 68.62 | 61 | 42.07 | 85 | 70.94 | 39 | 45.35 |
| 1984 Grade 4 BST | 145 | 63.18 | 19 | 13.10 | 86 | 66.25 | 18 | 20.93 |
| 1985 Grade 4 BST | 144 | 77.75 | 102 | 70.34 | 86 | 83.32 | 69 | 80.23 |
| • One year C/R | 13 | 83.42 | 11 | 84.62 | 14 | 90.34 | 14 | 100.00 |
| • Two years C/R | 54 | 83.88 | 46 | 85.19 | 30 | 85.00 | 26 | 86.67 |
| • Three years C/R | 77 | 72.50 | 45 | 57.69 | 42 | 79.79 | 29 | 69.05 |
| Pro 83; Pro 84; Pro 85 | | | | | | | | |
| 1982 Grade 2 BST | 274 | 63.70 | 0 | 0.00 | 212 | 65.40 | 0 | 0.00 |
| 1983 Grade 3 BST | 271 | 79.79 | 190 | 69.34 | 210 | 76.19 | 124 | 58.49 |
| 1984 Grade 4 BST | 274 | 79.46 | 162 | 59.12 | 212 | 79.44 | 119 | 56.13 |
| 1985 Grade 5 BST | 274 | 72.19 | 143 | 52.19 | 212 | 74.76 | 127 | 59.91 |
| • One year C/R | 128 | 77.42 | 88 | 68.75 | 82 | 81.26 | 60 | 73.71 |
| • Two years C/R | 99 | 69.26 | 40 | 40.40 | 81 | 73.24 | 49 | 60.49 |
| • Three years C/R | 47 | 64.10 | 15 | 31.91 | 49 | 66.37 | 18 | 36.73 |

Retained 83; Retained 84; Promoted 85

The second section of Table 1 illustrates the BST performance of initial 1982 compensatory/remedial program qualifiers who were retained in grade 2 during both the 1982-83 and 1983-84 school years, and then promoted to grade 3 during 1984-85. These students were thus tested on the Grade 2 BST during 1982, 1983, and 1984, and then tested on the Grade 3 BST in 1985.

Among the seven students for whom complete language arts data were available, five (71.43%) passed the 1985 Grade 3 BST in language arts. As shown in Table 1, all seven had received only one year of compensatory/remedial services, meaning that they had failed to meet the BST standard for grade 2 only once although they had been retained in that grade twice.

The mathematics performance data indicate that two of the three students tracked through the 1985 administration of the Grade 3 BST (66.67%) scored at or above the minimum standard in mathematics. All three had received only one year of compensatory/remedial services.

Retained 83; Promoted 84; Retained 85

These students were retained in grade 2 during 1982-83, promoted to grade 3 during 1983-84, and then retained in grade 3 during 1984-85; they thus took the grade 2 BSTs in 1982 and 1983 and the grade 3 BSTs in 1984 and 1985.

In language arts, 89 students were tracked through to the 1985 administration of the Grade 3 BST. Of that number, 71 (79.78%) passed the language arts component of the 1985 BST. Of these 89 students, 30 (33.71%) had received one year of compensatory/remedial services, 54

(60.67%) had received two years of services, and 5 (5.62%) had received three years of services.

The mathematics performance of students in this group indicates that among the 66 students tracked through to the administration of the 1985 Grade 3 BST, 57 (86.36%) scored at or above the performance standard. Twenty of these 66 students (30.30%) received one year of compensatory/remedial services, 44 (66.67%) received two years of services, and 2 (3.03%) received three years of services.

Retained 83; Promoted 84; Promoted 85

The BST performance of initial 1982 compensatory/remedial program qualifiers who were retained in grade 2 during 1982-83, promoted to grade 3 in 1983-84, and promoted to grade 4 in 1984-85 is shown in Table 1. Among the 488 language arts qualifiers for whom complete data were available, 356 (72.80%) passed the language arts component of the 1985 Grade 4 BST. One year of language arts services was received by 412 of the 488 students (84.43%), two years of services were received by 67 (13.73%), and nine of these students (1.84%) received three years of services.

In mathematics, 166 of the 250 students tracked through to 1985 (66.14%) scored at or above the minimum performance standard on the Grade 4 BST. Among the 250 students, 199 (79.60%) received one year of compensatory/remedial services, 50 (20.00%) received two years of services, and 1 (0.40%) received three years of services.

Promoted 83; Retained 84; Retained 85

These initial 1982 compensatory/remedial program qualifiers were

promoted to grade 3 during 1982-83 and then retained in grade 3 during both the 1983-84 and 1984-85 school years. Of the seven language arts students in this group, six (85.71%) passed the language arts component of the 1985 Grade 3 BST. One (14.29%) received two years of compensatory/remedial services, and the other six (85.71%) received three years of services.

The mathematics performance of the seven students in this subgroup indicates that five of the seven (71.43%) passed the mathematics component of the 1985 Grade 3 BST. Three of the seven (42.86%) received two years of services; the other four (57.14%) received three years of services.

Promoted 83; Retained 84; Promoted 85

These students were promoted to grade 3 during 1982-83, retained at that level for 1983-84, and promoted to grade 4 for 1984-85. Among the 162 language arts qualifiers tested on the 1985 Grade 4 BST, 105 (64.42%) scored at least the minimum performance standard on the language arts component of the exam. One year of compensatory/remedial services was received by 32 of the 162 students (19.75%), 112 (69.13%) received two years of services, and 18 (11.11%) received three years of services.

In mathematics, 69 of the 105 students tested (65.09%) passed the 1985 Grade 4 BST. .Among the 105, 24 (22.86%) received one year of services, 67 (63.81%) received two years of services, and 14 (13.33%) received three years of services.

Promoted 83; Promoted 84; Retained 85

Data concerning the BST performance of initial 1982 qualifiers promoted to grade 3 during 1982-83, promoted to grade 4 during 1983-84, and then retained at that level during 1984-85 are shown in the next section of Table 1. Among the 144 language arts students in this group who were tested on the 1985 Grade 4 BST, 102 (70.34%) passed the exam. Thirteen of the 144 (9.03%) received one year of compensatory/remedial services, 54 (37.50%) received two years of services, and 77 (53.47%) received three years of services.

Among the 86 mathematics qualifiers, 69 (80.23%) scored at least the minimum performance standard on the 1985 Grade 4 BST. Of the 86, 14 (16.28%) received one year of compensatory/remedial services, 30 (34.88%) received two years of services, and 42 (48.84%) received three years of services.

Promoted 83; Promoted 84; Promoted 85

The final section of Table 1 presents BST performance data relative to initial 1982 qualifiers who were promoted to each successive grade level since 1982 so that they were tested on the Grade 5 BST in 1985. Among the 274 language arts qualifiers, 143 (52.19%) scored at least the minimum performance standard on the language arts component of the exam. Of the 274, 128 (46.72%) received one year of compensatory/remedial services, 99 (36.13%) received two years of services, and 47 (17.15%) received three years of services.

In mathematics, 127 of the 212 students tested in this group (59.91%) passed the mathematics component of the 1985 Grade 5 BST. Among the 212 students, 82 (38.68%) received one year of services, 81

(38.20%) received two years of services, and 49 (23.11%) received three years of services.

## Summary of 1982-1985 BST Attainment Rates of Initial 1982 Qualifiers

### Introduction

A summary flowchart of the 1982-85 BST standard attainment rates of regular education students who qualified for compensatory/remedial services in 1982 is presented in Figure 10. The data are drawn from Table 1 and reflect the attainment rates of each of the promoted/retained student subgroups described in that table. The 1985 BST means for each of the subgroups are shown below the final level of the flowchart for language arts (L) and mathematics (M).

As Figure 10 illustrates, among the regular education students who failed to attain the minimum performance standard on the 1982 Grade 2 BST and thus qualified for compensatory/remedial services during the 1982-83 school year, 50 percent were retained in grade 2 for 1982-83, and 50 percent were promoted to grade 3.

### Retained 1982-83 Group

During the spring of 1983 the retained group again took the Grade 2 BST. Among those students who had received grade 2 compensatory/remedial services in language arts, 90 percent attained the minimum performance standard on the language arts component of the 1983 Grade 2 BST. Among the recipients of grade 2 services in mathematics, 94 percent attained the minimum standard on the mathematics component.

At the end of the 1982-83 school year, 2 percent of the students

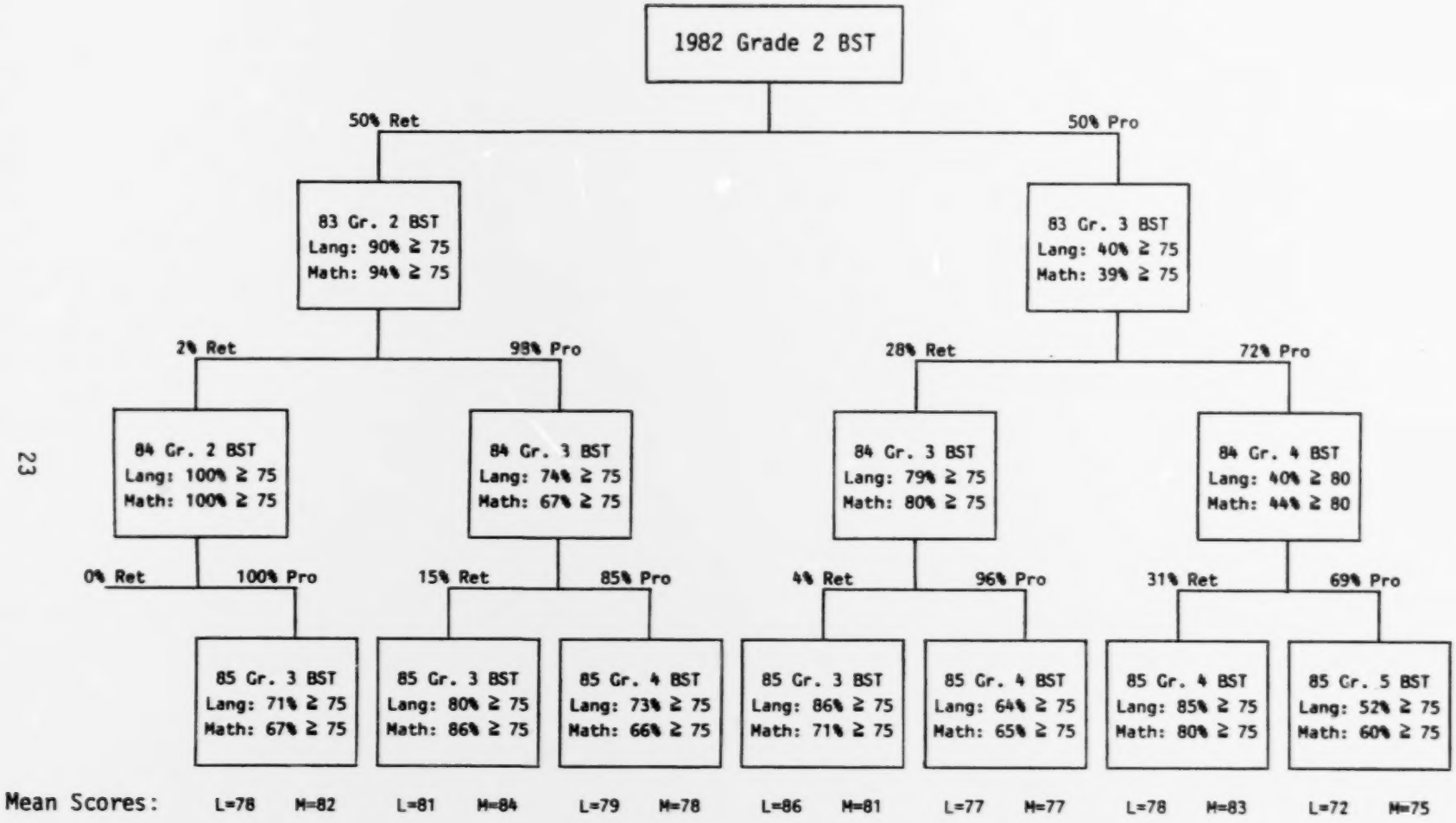


Figure 10. BST Attainment Rates for Initial 1982 Grade 2 Compensatory/Remedial Program Qualifiers

who had been retained that year were again retained in grade 2 for 1983-84; the remaining 98 percent were promoted to grade 3.

Promoted 1982-83 Group

Students in the initial qualifying group promoted to grade 3 for 1982-83 received both grade 2 compensatory education and grade 3 regular instruction during that school year. Upon being tested on the Grade 3 BST in 1983, 40 percent of the recipients of grade 2 language arts services attained the minimum standard on the language arts component; in mathematics, 39 percent attained at least the minimum on the mathematics component. In 1983-84, among those students who had been promoted to grade 3 in the previous year, 28 percent were retained in grade 3 for 1983-84, and 72 percent were promoted to grade 4.

Retained 1982-83; Retained 1983-84 Group

The 1984 Grade 2 BST performance of students who had been retained in grade 2 for two successive years is shown in the lower left block of the third level of Figure 10. Among the original 1982 qualifiers for language arts services, all students (100%) attained the minimum on the language arts component of the 1984 test. Performance on the mathematics component was comparable.

Retained 1982-83; Promoted 1983-84 Group

The 1984 Grade 3 BST performance of students who had been retained in grade 2 during 1982-83 and then promoted to grade 3 for 1983-84 is shown in the component of the flowchart labeled "98% Pro." Among the initial language arts qualifiers in this group, 74 percent attained the

minimum on the language arts component of the Grade 3 BST; in mathematics, 67 percent attained the minimum.

Promoted 1982-83; Retained 1983-84 Group

The 1984 Grade 3 BST performance of students who had been promoted to grade 3 during 1982-83 and then retained there for 1983-84 is illustrated in the flowchart component labeled "28% Ret." As illustrated, 79 percent of the initial language arts qualifiers attained the minimum requirement on the language arts component of the 1984 Grade 3 BST. The passing rate among the total group of mathematics qualifiers was 80 percent.

Promoted 1982-83; Promoted 1983-84 Group

The 1984 Grade 4 BST performance of students who had been promoted to grade 3 during 1982-83 and then promoted to grade 4 for 1983-84 is illustrated in the "72% Pro" section of Figure 10. Among the original language arts qualifiers, 40 percent attained the minimum performance standard on the 1984 Grade 4 BST. Among the original mathematics qualifiers, 44 percent attained the minimum.

Retained 1982-83; Retained 1983-84; Retained 1984-85 Group

The fourth level of Figure 10 illustrates the 1985 BST attainment rates of initial 1982 grade 2 compensatory/remedial qualifiers by student group. Among those students who had been retained in grade 2 for both 1982-83 and 1983-84, none were retained for a third time at that level.

Retained 1982-83; Retained 1983-84; Promoted 1984-85 Group

The first complete block shown on the fourth level of Figure 10 illustrates the 1985 Grade 3 BST performance of initial 1982 qualifiers who were retained in grade 2 for two successive years and then promoted to grade 3 for 1984-85. Among the original language arts qualifiers, 71 percent attained at least the minimum performance standard on the language arts component of the 1985 Grade 3 BST. Among the initial mathematics qualifiers, 67 percent attained at least the minimum on the mathematics component.

Retained 1982-83; Promoted 1983-84; Retained 1984-85 Group

Among the initial 1982 qualifiers retained during 1982-83 and then promoted for 1983-84, 15 percent were retained in grade 3 for the 1984-85 school year. The 1985 Grade 3 BST attainment rate for original language arts qualifiers was 80 percent passage; that among original mathematics qualifiers was 86 percent.

Retained 1982-83; Promoted 1983-84; Promoted 1984-85 Group

The other 85 percent of the original compensatory/remedial qualifiers retained in 1982-83 and then promoted in 1983-84, were promoted to grade 4 for 1984-85. The attainment rate of the language arts qualifiers was 73 percent passage on the 1985 Grade 4 BST. Among the initial mathematics qualifiers, 66 percent passed the mathematics component.

Promoted 1982-83; Retained 1983-84; Retained 1984-85 Group

The 1985 BST performance of initial 1982 compensatory/remedial

qualifiers promoted to grade 3 for 1982-83 and then retained at that level for two successive years is shown in the section labeled "4% Ret" in Figure 10. Among the initial language arts qualifiers, 86 percent attained at least the minimum performance standard; 71 percent of the initial mathematics qualifiers performed comparably on the mathematics component.

Promoted 1982-83; Retained 1983-84; Promoted 1984-85 Group

Among the 1982 qualifiers who had been promoted to grade 3 for 1982-83 and then retained at that level for 1983-84, 96 percent were promoted to grade 4 for the 1984-85 school year. The 1985 Grade 4 BST attainment rate among the language arts qualifiers was 64 percent on the language arts component; that among the mathematics qualifiers was 65 percent.

Promoted 1982-83; Promoted 1983-84; Retained 1984-85 Group

The 1985 BST performance of initial 1982 qualifiers promoted to grade 3 for 1982-83, promoted to grade 4 in 1983-84, and then retained at that level in 1984-85 is shown in the section labeled "31% Retained." Among the language arts qualifiers, 85 percent passed the language arts component of the 1985 Grade 4 BST. The attainment rate among the initial mathematics qualifiers was 80 percent.

Promoted 1982-83; Promoted 1983-84; Promoted 1984-85 Group

Among the 1982 qualifiers who were promoted to successive grade levels in 1982-83 and 1983-84, 69 percent were promoted to grade 5 in 1984-85. The 1985 Grade 5 BST attainment rate among the language arts

qualifiers in this group was 52 percent passage on the language arts component; that in mathematics was 60 percent on the mathematics component.

Overall, 24.84 of the initial 1982 grade 2 compensatory/remedial program qualifiers were never retained during the 1982-1985 period, 66.25 percent were retained once, and 8.91 percent were retained twice. None were retained three times.

## Comparison of 1985 BST Results Among Initial 1982 Qualifiers Tested at Comparable BST Levels

### Grade 3 BST Results

#### Language Arts

Among the initial 1982 grade 2 compensatory/remedial qualifiers tracked through to the 1984-85 school year, three subgroups were enrolled in grade 3 in 1985 and were thus all tested on the Grade 3 BST during 1985. Students in all three subgroups had been retained twice and promoted once during the 1982-85 span, but the promotion/retention sequence, as well as the number of years of compensatory/remedial services received, varied across the subgroups. Among the 101 initial language arts qualifiers, seven had been promoted to grade 3 for 1982-83 and then retained at that level for two successive years (PRR); 89 had been initially retained at grade 2, then promoted to grade 3, and finally retained at that level for 1984-85 (RPR); the remaining five students had been retained twice at grade 2 prior to promotion to grade 3 for 1984-85 (RRP). Across the 101 students in these three subgroups, 35 had received one year of compensatory/remedial services in language arts, 55 had received two years of services, and 11 had received three years of services.

The effects of the varied promotion/retention patterns and the number of years of compensatory/remedial services received by language arts students in the three subgroups on 1985 Grade 3 BST performance were examined through an analysis of covariance procedure. Initial 1982 Grade 2 BST scores were used as the covariant. The results are shown in Table 2.

This procedure created a statistical model that asked the question, "Are there any differences in 1985 Grade 3 BST performance on the basis of the three different promotion/retention patterns observed among these students, or on the basis of the number of years of compensatory/remedial services received by these students after initial differences in 1982 Grade 2 BST scores are taken into account?" For all analyses, .05 was used as the level of statistical significance (the possibility of the observed difference being due to chance is less than 5 in 100).

As illustrated in Table 2, the statistical model incorporating student category (PRR, RPR, or RPP) and number of years of compensatory/remedial services received (one, two, or three) with initial 1982 Grade 2 BST scores as a covariant was found to be significant ($PR < 0.0001$). This means that the probability of the observed differences in the 1985 Grade 3 BST language arts performance of the students examined in the model having occurred by chance is less than one in 10,000. However, the R-square of 0.2363 indicates that these factors may account for only 23.63 percent of the variation in the 1985 BST scores. The remaining variation must be due to factors not incorporated into the model.

Upon close examination of the analysis of covariance model, significant differences were found within the main effects of student category ($PR < 0.0007$) and years of compensatory/remedial services

Table 2. Analysis of Covariance, Language Arts Performance of 1982 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 3 BST in 1985
N = 101

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 5 | 3596.74 | 719.35 | 5.88 | 0.0001* | 0.2363 |
| Error | 95 | 11621.26 | 122.33 | - | - | - |
| Corrected Total | 100 | 15218.00 | - | - | - | - |
| Student Category | 2 | 1926.34 | - | 7.87 | 0.0007* | - |
| Years C/R | 2 | 3212.11 | - | 13.13 | 0.0001* | - |
| 82 Grade 2 BST | 1 | 2.59 | - | 0.02 | 0.8847 | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. PRR | 7 | 65.24 | 85.56 | 97.43 | PRR vs. RPR = 0.0007* |
| b. RPR | 89 | 56.42 | 81.35 | 76.53 | PRR vs. RRP = 0.0002* |
| c. RRP | 5 | 57.00 | 77.39 | 66.23 | RPR vs. RRP = 0.0573 |
| Years C/R | | | | | |
| a. One | 35 | 59.67 | 86.18 | 91.22 | One vs. Two = 0.0021* |
| b. Two | 55 | 55.45 | 79.78 | 83.11 | One vs. Three=0.0001* |
| c. Three | 11 | 56.82 | 73.72 | 65.85 | Two vs. Three=0.0005* |

*Denotes significance beyond the .05 level.

received (PR > 0.0001). Thus, differences in adjusted 1985 BST scores were observed among students in different categories (PRR, RPR, and RRP), and among students who had received varying years of compensatory/ remedial services. However, the students' 1982 Grade 2 BST scores did not appear to be strongly related to differences in their 1985 Grade 3 BST language arts performance (PR < 0.8847).

In order to pinpoint the nature of the observed differences, a t-test procedure was used to compare the adjusted 1985 Grade 3 BST means of the students by category (PRR, RPR, or RRP) and by years of services received (one, two, or three). The mean comparisons by student category indicated that, once initial differences in 1982 Grade 2 BST scores were accounted for, the PRR students significantly outperformed both the RPR (PR < 0.0007) and the RRP groups (PR < 0.0002) on the 1985 Grade 3 BST. It must, however, be noted that students in this PRR group were completing their third year of grade 3 instruction and were being tested on the Grade 3 BST for the third time. Comparisons of adjusted 1985 BST performance by years of services received indicated that the one-year recipients scored significantly higher than the other two groups, and that two-year recipients outscored those who had received three years of services.

Mathematics

A similar analysis of covariance model was used to compare the 1985 Grade 3 BST mathematics performance of the three student subgroups who had initially qualified for mathematics services in 1982 and who were in grade 3 in 1985. Among the 75 such students for whom four years of data were available, seven were in the PRR category, 66 were classified as

RPR, and two were in the RRP category. Twenty-two had received one year of compensatory/remedial services, 47 had received two years of services, and six were three-year service recipients.

The results of the analysis are shown in Table 3. The overall model was significant ($PR < 0.0006$) with the R-square value being 0.2673. Among the two main effects examined in the model, only years of compensatory/remedial services received was found to be significant ($PR < 0.0004$). In adjusted 1985 Grade 3 BST performance, students who had received either one or two years of compensatory/remedial services were found to perform significantly better than three-year service recipients.

## Grade 4 BST Results

### Language Arts

Among the initial 1982 Grade 2 compensatory/remedial qualifiers in language arts an additional three subgroups emerged such that all were tested on the Grade 4 BST in 1985. One subgroup (144 students) had been promoted twice prior to retention at grade 4 (PPR); a second (160 students) had been promoted, retained, and then promoted again (PRP); and the third (487 students) had been retained once prior to two successive promotions (RPP). Only one year of compensatory/remedial services had been received by 456 of these students, 231 had received two years of services, and 104 were three-year service recipients.

An analysis of covariance procedure was again used to compare the 1985 Grade 4 BST performance of these students by student category and by years of services received. Initial 1982 Grade 2 BST scores were again used as the covariant. The results are shown in Table 4.

Table 3. Analysis of Covariance, Mathematics Performance of 1982 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 3 BST in 1985
N=75

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 5 | 3188.58 | 637.72 | 5.04 | 0.0006* | 0.2673 |
| Error | 69 | 8738.16 | 126.64 | - | - | - |
| Corrected Total | 74 | 11926.75 | - | - | - | - |
| Student Category | 2 | 469.73 | - | 1.96 | 0.1485* | - |
| Years C/R | 2 | 2215.32 | - | 8.75 | 0.0004* | - |
| 82 Grade 2 BST | 1 | 285.94 | - | 2.26 | 0.1375 | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. PRR | 7 | 67.62 | 80.57 | 85.96 | PRR vs. RPR = 0.1240 |
| b. RPR | 66 | 60.45 | 84.05 | 76.97 | PRR vs. RRP = 0.0615 |
| c. RRP | 2 | 59.17 | 76.00 | 66.41 | RPR vs. RRP = 0.2116 |
| Years C/R | | | | | |
| a. One | 22 | 63.86 | 86.55 | 86.42 | One vs. Two = 0.3487 |
| b. Two | 47 | 59.86 | 84.34 | 83.49 | One vs. Three=0.0001* |
| c. Three | 6 | 60.56 | 65.83 | 59.42 | Two vs. Three=0.0001* |

*Denotes significance beyond the .05 level.

Table 4. Analysis of Covariance, Language Arts Performance of 1982 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 4 BST in 1985
N=791

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 5 | 30820.42 | 6164.98 | 35.69 | 0.0001* | 0.1852 |
| Error | 785 | 135583.15 | 172.72 | - | - | - |
| Corrected Total | 790 | 166403.57 | - | - | - | - |
| Student Category | 2 | 5340.92 | - | 15.46 | 0.0001* | - |
| Years C/R | 2 | 14686.48 | - | 42.52 | 0.0001* | - |
| 82 Grade 2 BST | 1 | 8753.83 | - | 50.68 | 0.0001* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. PPR | 144 | 62.85 | 77.75 | 81.53 | PPR vs. PRP = 0.0003* |
| b. PRP | 160 | 63.20 | 77.19 | 75.49 | PPR vs. RPP = 0.0001* |
| c. RPP | 487 | 61.83 | 78.80 | 71.78 | PRP vs. RPP = 0.0129* |
| Years C/R | | | | | |
| a. One | 456 | 63.34 | 81.22 | 84.80 | One vs. Two = 0.0001* |
| b. Two | 231 | 61.33 | 76.61 | 77.39 | One vs. Three=0.0001* |
| c. Three | 104 | 59.84 | 69.13 | 66.61 | Two vs. Three=0.0001* |

*Denotes significance beyond the .05 level.

As illustrated, the overall model was significant ($PR < 0.0001$); the R-square value was 0.1852. The two main effects as well as the covariant were all found to be significant ($PR < 0.0001$ for all). When adjusted 1985 Grade 4 BST means were compared by student category, the subgroup PPR was found to have outperformed both the PRP ($PR < 0.0003$) and the RPP ($PR < 0.0001$) subgroups. It must again be noted that the PPR students were completing their second year in grade 4 and were being tested on the Grade 4 BST for the second time. The PRP students outscored the RPP subgroup ($PR < 0.0129$). Significant differences also were found among the one, two, and three-year service recipients with the one-year recipients outperforming both the two and three-year service recipients. The two-year students also outscored those who had received three years of services ($PR < 0.0001$ for all comparisons).

Mathematics

Among the initial grade 2 mathematics qualifiers, 39 were in the PPR subgroup, 50 were PRP students, and 178 were in the RPP subgroup. One year of compensatory/remedial services was received by 160 students, 74 had received two years of services, and 33 were three-year service recipients. The results of the analysis of covariance model used to compare the 1985 Grade 4 BST performance of these students are shown in Table 5.

As was the case among language arts qualifiers, the mathematics model was significant ($PR < 0.0001$); the R-square value was 0.1811. The main effects of student category and years of C/R as well as the covariant (82 Grade 2 BST scores) were all significant. Examination of the adjusted 1985 Grade 4 BST scores indicated that the PPR subgroup

Table 5. Analysis of Covariance, Mathematics Performance of 1982 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 4 BST in 1985
N=267

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 5 | 8337.97 | 1667.59 | 11.55 | 0.0001* | 0.1811 |
| Error | 261 | 37693.39 | 144.42 | - | - | - |
| Corrected Total | 266 | 46031.36 | - | - | - | - |
| Student Category | 2 | 3256.37 | - | 11.27 | 0.0001* | - |
| Years C/R | 2 | 5623.77 | - | 19.47 | 0.0001* | - |
| 82 Grade 2 BST | 1 | 1379.87 | - | 9.55 | 0.0022* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. PPR | 39 | 63.85 | 80.77 | 84.60 | PPR vs. PRP = 0.0015* |
| b. PRP | 50 | 63.90 | 75.55 | 74.99 | PPR vs. RPP = 0.0001* |
| c. RPP | 178 | 61.90 | 77.43 | 70.42 | PRP vs. RPP = 0.0445* |
| Years C/R | | | | | |
| a. One | 160 | 62.71 | 80.33 | 85.73 | One vs. Two = 0.0001* |
| b. Two | 74 | 62.27 | 73.31 | 76.06 | One vs. Three=0.0001* |
| c. Three | 33 | 62.47 | 73.66 | 68.22 | Two vs. Three=0.0119* |

*Denotes significance beyond the .05 level.

outperformed both the PRP (PR < 0.0015) and the RPP (PR < 0.0001) subgroups, while the PRP subgroup outscored students in the RPP subgroup (PR < 0.0445). Again, the combined effects of retention in grade 4 and repeated testing on the same BST may have accounted for the observed results. The one-year service recipients were found to have outperformed the students who had received two or three years of services (PRO < .0001 in each case), and the two-year recipients outscored those who had received three years of services (PR < 0.0119).

Evaluation Question 4: What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of 1983 qualifiers?

Introduction

The second group of students for whom 1985 BST performance was examined was that group who qualified for compensatory/remedial services through the 1983 Grade 2 and Grade 3 BSTs. From the original 1983 group of compensatory/remedial qualifiers at each grade level, two subgroups emerged in 1984, based on whether the participants were promoted or retained for the 1983-84 school year. Each subgroup was further subdivided for the 1985 testing, again on the basis of promotion/retention, so that four distinct categories emerged.

The effect of the State-Funded Compensatory/Remedial Program on the 1985 language arts and mathematics BST performance of the 1983 group of grade 2 and grade 3 qualifiers is shown in Tables 6 and 7. For each area (language arts and mathematics), the number of students tested (N), the appropriate BST mean score, and the number and percentage of students attaining the minimum standard on the BST are shown by student subgroup.

Table 6. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory Remedial Services on the 1983 Grade 2 BST

| Student Group | LANGUAGE ARTS N | LANGUAGE ARTS BST Mean | LANGUAGE ARTS Scored ≥ 75 N | LANGUAGE ARTS Scored ≥ 75 % | MATHEMATICS N | MATHEMATICS BST Mean | MATHEMATICS Scored ≥ 75 N | MATHEMATICS Scored ≥ 75 % |
|---|---|---|---|---|---|---|---|---|
| Ret 84; Ret 85 | | | | | | | | |
| 1983 Grade 2 BST | 31 | 49.41 | 0 | 0.00 | 17 | 43.92 | 0 | 0.00 |
| 1984 Grade 2 BST | 31 | 74.78 | 17 | 54.84 | 17 | 78.14 | 13 | 76.47 |
| 1985 Grade 2 BST | 31 | 89.46 | 28 | 90.32 | 17 | 93.24 | 17 | 100.00 |
| • One year C/R | 17 | 95.00 | 17 | 100.00 | 13 | 94.23 | 13 | 100.00 |
| • Two years C/R | 14 | 82.74 | 11 | 78.57 | 4 | 90.00 | 4 | 100.00 |
| Ret 84; Pro 85 | | | | | | | | |
| 1983 Grade 2 BST | 729 | 61.53 | 0 | 0.00 | 469 | 63.85 | 0 | 0.00 |
| 1984 Grade 2 BST | 729 | 92.50 | 703 | 96.43 | 469 | 91.94 | 455 | 97.02 |
| 1985 Grade 3 BST | 726 | 78.89 | 511 | 70.10 | 465 | 77.66 | 297 | 63.33 |
| • One year C/R | 700 | 79.94 | 507 | 72.12 | 451 | 78.27 | 296 | 65.05 |
| • Two years C/R | 26 | 50.71 | 4 | 15.38 | 14 | 58.07 | 1 | 7.14 |
| Pro 84; Ret 85 | | | | | | | | |
| 1983 Grade 2 BST | 200 | 62.28 | 0 | 0.00 | 170 | 64.75 | 0 | 0.00 |
| 1984 Grade 3 BST | 200 | 57.15 | 37 | 18.50 | 170 | 60.09 | 29 | 17.06 |
| 1985 Grade 3 BST | 199 | 75.54 | 127 | 63.50 | 170 | 78.52 | 115 | 67.65 |
| • One year C/R | 37 | 83.70 | 30 | 81.08 | 29 | 82.79 | 22 | 75.86 |
| • Two years C/R | 162 | 73.67 | 97 | 59.51 | 141 | 77.65 | 93 | 65.96 |
| Pro 84; Pro 85 | | | | | | | | |
| 1983 Grade 2 BST | 279 | 65.43 | 0 | 0.00 | 275 | 67.95 | 0 | 0.00 |
| 1984 Grade 3 BST | 279 | 78.60 | 199 | 71.33 | 275 | 77.48 | 177 | 64.36 |
| 1985 Grade 4 BST | 279 | 73.44 | 154 | 55.20 | 275 | 76.02 | 175 | 63.64 |
| • One year C/R | 199 | 76.53 | 125 | 62.81 | 177 | 78.26 | 124 | 70.06 |
| • Two years C/R | 80 | 65.77 | 29 | 36.25 | 98 | 71.97 | 51 | 52.04 |

Table 7. Analysis of Covariance, Language Arts Performance of 1983 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 3 BST in 1985
N=921

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 3 | 36611.36 | 12203.79 | 61.53 | 0.0001* | 0.1676 |
| Error | 917 | 181872.11 | 198.33 | - | - | - |
| Corrected Total | 920 | 218483.47 | - | - | - | - |
| Student Category | 1 | 3691.22 | - | 18.61 | 0.0001* | - |
| Years C/R | 1 | 12141.23 | - | 61.22 | 0.0001* | - |
| 83 Grade 2 BST | 1 | 15498.28 | - | 78.14 | 0.0001* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. RP | 722 | 61.58 | 78.87 | 71.90 | RP vs. PR = 0.0001* |
| b. PR | 199 | 62.32 | 75.54 | 80.05 | - |
| Years C/R | | | | | |
| a. One | 733 | 62.25 | 80.11 | 83.56 | One vs. Two = 0.0001* |
| b. Two | 188 | 59.75 | 70.50 | 68.39 | - |

*Denotes significance beyond the level .05 level.

## 1983-85 BST Performance of Grade 2 Qualifiers

### Retained 84; Retained 85

The 1983-85 BST performance of regular education compensatory/remedial students who initially qualified for grade 2 services on the 1983 BST and who were retained at that level for 1983-84 and 1984-85 is shown in the first section of Table 2. These students were tested on the Grade 2 BST for three successive years.

Among the 31 language arts students for whom complete data were available, 28 (90.32%) attained at least the minimum performance standard on the language arts component of the 1985 Grade 2 BST. Seventeen of the 31 had received one year of compensatory/remedial services during the 1983-85 period, and the other 14 had received two years of services.

In mathematics, all 17 students (100.00%) who had taken the Grade 2 BST in 1983, 1984, and 1985 attained at least the minimum performance standard on the mathematics component of the 1985 Grade 2 BST. Thirteen had received one year of services, and the other four were two-year service recipients.

### Retained 84; Promoted 85

These qualifiers were retained in grade 2 during 1983-84, and then promoted to grade 3 during 1984-85. They were thus tested on the Grade 2 BST during 1983 and 1984, and then on the Grade 3 BST in 1985.

Among the 726 students for whom complete language arts data were available, 511 (70.10%) passed the 1985 Grade 3 BST in language arts. As shown in Table 6, 700 had received only one year of compensatory/remedial services; the other 26 had received two years of services.

The mathematics performance data indicate that 297 of the 465 students tracked through the 1985 administration of the Grade 3 BST (63.33%) scored at or above the minimum standard in mathematics. Of these 465 students, 451 had received only one year of compensatory/ remedial services; 14 had received two years of services.

Promoted 84; Retained 85

The BST performance of 1983 qualifiers who were promoted to grade 3 during 1983-84 and then retained at that level during 1984-85 is shown in the next section of Table 6. These students took the Grade 2 BST in 1983, but then took the Grade 3 BST in both 1984 and 1985.

In language arts, 127 of the 199 students in this subgroup (63.50%) passed the language arts component of the 1985 Grade 3 BST. Thirty-seven of the 199 had received one year of compensatory/remedial services; the remaining 162 were two-year service recipients.

The mathematics performance of students in this group indicates that among the 170 students tracked through to the administration of the 1985 Grade 3 BST, 115 (67.65%) scored at or above the performance standard. Of the 170 students, 29 had received one year of compensatory/remedial services, and 141 had received two years of services.

Promoted 84; Promoted 85

The BST performance of 1983 grade 2 qualifiers promoted in successive years to grades 3 and 4 indicates that, among the 279 language arts students, 154 (55.20%) passed the 1985 Grade 4 BST. Of the 279 students, 199 had received one year of compensatory/remedial services; the remaining 80 were two-year service recipients.

In mathematics, 175 of the 275 students tracked through to 1985 (63.64%) scored at or above the minimum performance standard on the Grade 4 BST. Among the 275 students, 177 had received one year of compensatory/remedial services; the other 98 had received two years of services.

## Promotion and BST Attainment History of 1983 Grade 2 Qualifiers

Figure 11 shows the outcomes over three years for students who first took the Grade 2 BST in 1983 and who failed to meet the achievement standards set for that test. Among those students, about 54 percent were retained in grade 2 for 1983-84. When they were retested on the Grade 2 BST in 1984, virtually all met the grade 2 standards. About 3 percent of these students were again retained in grade 2, and about 97 percent were promoted to grade 3. Those who were retained for the second time in grade 2 during 1983-84 were almost all successful in their third attempt at the grade 2 BST in 1985 (90 percent in language arts and 100 percent in mathematics). Those who had been promoted to grade 3 for 1984-85 were less likely to pass the Grade 3 BST in 1985; approximately two-thirds met the standards.

Forty-six percent of the students who were unsuccessful on the Grade 2 BST in 1983 were promoted to grade 3 in 1984-85. Less than half of these students passed the Grade 3 BST in the spring of that year. However, 62 percent of the students were promoted again, this time to grade 4, while 38 percent were retained in grade 3 during 1984-85. About two-thirds of the students attempting the Grade 3 BST for the second time met its standards successfully in 1985 (64 percent in language arts and 68 percent in mathematics). Somewhat more than

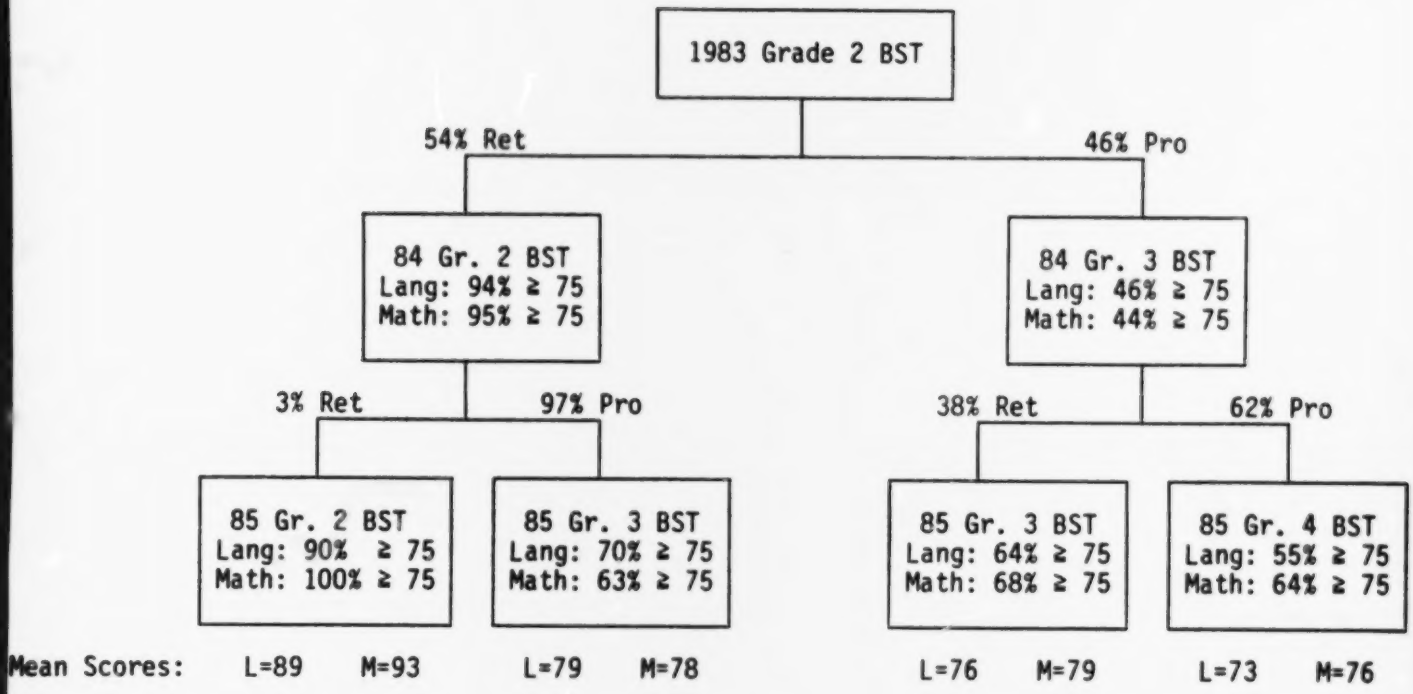


Figure 11. BST Attainment Rates for Initial 1983 Grade 2 Compensatory/Remedial Program Qualifiers

one-half of those who had been promoted to grade 4 were successful on that test.

When promotion rates of 1983 grade 2 compensatory/remedial qualifiers are summarized across the two school years, 28.52 percent of the students were never retained during that period, 69.86 percent were retained once, and 1.62 percent were retained twice. 1985 BST mean scores shown below each flowchart component in Figure 11 indicate that, for the two subgroups tested on the Grade 3 BST in 1985, comparable results were obtained. An in-depth comparison of these results is provided in the next section of this report.

## Comparison of 1985 Grade 3 BST Results Among 1983 Grade 2 Qualifiers

### Language Arts

Among the 1983 grade 2 compensatory/remedial qualifiers tracked through to the 1984-85 school year, two subgroups were enrolled in grade 3 in 1985 and thus tested on the Grade 3 BST during 1985. Students in both subgroups had been retained once and promoted once during the 1983-85 span, but the promotion/retention sequence, as well as the number of years of compensatory/remedial services received, varied across the subgroups. Among the 921 initial language arts qualifiers who were retained once, 722 had been retained in grade 2 for 1983-84 and promoted to grade 3 for 1984-85 (RP). The other 199 had been initially promoted to grade 3 and retained at that level for 1984-85 (PR). Across the 921 students in these two subgroups, 733 had received one year of compensatory/remedial services in language arts; the other 188 had received two years of services.

The effects of the varied promotion/retention patterns and the

number of years of compensatory/remedial services received by language arts students in the two subgroups on 1985 Grade 3 BST performance were examined through an analysis of covariance procedure. The results are shown in Table 7. As was the case relative to the previous model for 1982 grade 2 qualifiers, this procedure asked the question, "Are there any differences in 1985 Grade 3 BST performance on the basis of the two different promotion/retention patterns observed among these students or on the basis of the number of years of compensatory/remedial services received by these students after initial differences on the 1983 Grade 2 BST are taken into account?" For all analyses, .05 was used as the level of statistical significance.

As illustrated in Table 7, the statistical model incorporating student category (RP or PR) and number of years of compensatory/remedial services received (one or two), and initial 1983 Grade 2 BST scores as the covariant were found to be significant ($PR < 0.0001$). This means that the observed differences in the 1985 Grade 3 BST language arts performance of the students examined in the model could be attributed to the combined effects of student category and years of services received. However, the R-square of 0.1676 indicates that these factors may account for only 16.76 percent of the variation in the 1985 BST scores. The remaining 83.24 percent must be due to factors not incorporated into the model.

Upon close examination of the model, significant differences were found between the two levels of each of the main effects of student category and years of compensatory/remedial services received. Comparisons of the adjusted 1985 Grade 3 BST means indicated that the students who were promoted and then retained (PR) outperformed the group

retained and then promoted (RP). The recipients of one year of compensatory/remedial services outscored those who had received two years of services.

Mathematics

A similar model was used to compare the 1985 Grade 3 BST mathematics performance of the two student subgroups who had initially qualified for mathematics services in 1983 and who were in grade 3 in 1985. Among the 392 such students for whom three years of data were available, 322 were in the RP category and the other 70 were classified as PR. Of the total, 315 had received one year of compensatory/remedial services, and the other 77 had received two years of services.

The results of the analysis of covariance procedure are shown in Table 8. The overall model was significant ($PR < 0.0001$) with the R-square value being 0.1107. Only the effect of years of compensatory/remedial services received and the 83 Grade 2 BST covariant were found to be significant in the general model. Application of the t-test procedure indicated that significant differences in adjusted 1985 Grade 3 BST performance did exist in that the one-year service recipients outperformed the recipients of two years of services.

1983-85 BST Performance of Grade 3 Qualifiers

Retained 84; Retained 85

The 1983-85 BST performance of regular education compensatory/remedial students who initially qualified for grade 3 services on the 1983 BST and who were retained at that level for 1983-84 and 1984-85 is shown in the first section of Table 9. These students were tested on the Grade 3 BST for three successive years.

Table 8. Analysis of Covariance, Mathematics Performance of 1983 Grade 2 Compensatory/Remedial Program Qualifiers Who Took the Grade 3 BST in 1985
N=392

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 3 | 9676.15 | 3225.38 | 16.11 | 0.0001* | 0.1107 |
| Error | 388 | 77704.54 | 200.27 | - | - | - |
| Corrected Total | 391 | 87380.69 | - | - | - | - |
| Student Category | 1 | 368.55 | | 1.84 | 0.1757 | |
| Years C/R | 1 | 1705.56 | | 8.52 | 0.0037 | - |
| 83 Grade 2 BST | 1 | 5473.45 | - | 27.33 | 0.0001* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. RP | 322 | 62.88 | 76.39 | 71.92 | RP vs. PR = 0.1757 |
| b. PR | 70 | 60.76 | 71.94 | 76.43 | - |
| Years C/R | | | | | |
| a. One | 315 | 63.31 | 77.07 | 78.90 | One vs. Two= 0.0037* |
| b. Two | 77 | 59.22 | 69.56 | 69.44 | - |

*Denotes significance beyond the .05 level.





63

Table 9. 1985 BST Performance of Regular Education Students
Who Initially Qualified for Compensatory/Remedial
Services on the 1983 Grade 3 BST

| Student Group | LANGUAGE ARTS N | BST Mean | Scored ≥ 75 N | % | MATHEMATICS N | BST Mean | Scored ≥ 75 N | % |
|---|---|---|---|---|---|---|---|---|
| Ret 84; Ret 85 | | | | | | | | |
| 1983 Grade 3 BST | 21 | 54.04 | 0 | 0.00 | 31 | 60.39 | 0 | 0.00 |
| 1984 Grade 3 BST | 21 | 71.69 | 8 | 38.10 | 31 | 76.06 | 16 | 51.61 |
| 1985 Grade 3 BST | 21 | 88.51 | 19 | 90.48 | 31 | 88.61 | 28 | 90.32 |
| • One year C/R | 8 | 89.27 | 7 | 87.50 | 16 | 89.31 | 15 | 93.75 |
| • Two years C/R | 13 | 88.04 | 12 | 92.31 | 15 | 87.87 | 13 | 86.67 |
| Ret 84; Pro 85 | | | | | | | | |
| 1983 Grade 3 BST | 726 | 62.31 | 0 | 0.00 | 778 | 62.33 | 0 | 0.00 |
| 1984 Grade 3 BST | 725 | 87.10 | 661 | 91.05 | 778 | 87.31 | 707 | 90.87 |
| 1985 Grade 4 BST | 724 | 80.64 | 541 | 74.52 | 773 | 82.52 | 619 | 80.08 |
| • One year C/R | 662 | 82.04 | 518 | 78.25 | 703 | 83.45 | 585 | 83.21 |
| • Two years C/R | 62 | 65.67 | 23 | 35.94 | 70 | 73.18 | 34 | 48.57 |
| Pro 84; Ret 85 | | | | | | | | |
| 1983 Grade 3 BST | 403 | 62.16 | 0 | 0.00 | 492 | 63.14 | 0 | 0.00 |
| 1984 Grade 4 BST | 402 | 64.43 | 63 | 15.67 | 491 | 69.03 | 117 | 23.83 |
| 1985 Grade 4 BST | 401 | 80.41 | 305 | 76.06 | 490 | 83.83 | 410 | 83.67 |
| • One year C/R | 64 | 87.72 | 61 | 95.31 | 118 | 87.78 | 110 | 93.22 |
| • Two years C/R | 337 | 79.02 | 244 | 72.40 | 372 | 82.57 | 300 | 80.65 |
| Pro 84; Pro 85 | | | | | | | | |
| 1983 Grade 3 BST | 834 | 65.88 | 0 | 0.00 | 1497 | 66.89 | 0 | 0.00 |
| 1984 Grade 4 BST | 834 | 77.23 | 409 | 49.04 | 1496 | 81.35 | 936 | 62.57 |
| 1985 Grade 5 BST | 834 | 69.36 | 350 | 42.02 | 1491 | 75.92 | 904 | 60.63 |
| • One year C/R | 409 | 73.49 | 220 | 53.79 | 933 | 79.39 | 654 | 70.10 |
| • Two years C/R | 425 | 65.38 | 130 | 30.59 | 558 | 70.11 | 250 | 44.80 |

Among the 21 language arts students for whom complete data were available, 19 (90.48%) attained at least the minimum performance standard on the language arts component of the 1985 Grade 3 BST. Eight of the 21 had received one year of compensatory/remedial services during the 1983-85 period, and the other 13 had received two years of services.

In mathematics, 28 of the 31 students in this subgroup (90.32%) attained at least the minimum performance standard on the mathematics component of the 1985 Grade 3 BST. Sixteen had received one year of services, and the other 15 were two-year service recipients.

Retained 84; Promoted 85

As shown in Table 9, 1983 grade 3 compensatory/remedial program qualifiers who were retained in grade 3 during 1983-84 and then promoted to grade 4 during 1984-85 were tested on the Grade 3 BST during 1983 and 1984 and then tested on the Grade 4 BST in 1985. Among the 724 students for whom complete language arts data were available, 541 (74.52%) passed the 1985 Grade 4 BST in language arts. Of the total, 662 had received only one year of compensatory/remedial services; the other 62 had received two years of services.

The mathematics performance data indicates that 619 of the 773 students tracked through the 1985 administration of the Grade 4 BST scored at or above the minimum standard in mathematics (80.08%). Of these 773 students, 703 had received only one year of compensatory/remedial services; 70 had received two years of services.

Promoted 84; Retained 85

This subgroup of 1983 qualifiers consists of students who were

promoted to grade 4 during 1983-84 and then retained at that level during 1984-85. They thus took the Grade 3 BST in 1983, but then took the Grade 4 BST during both 1984 and 1985.

In language arts, 305 (76.06%) of the 401 students in this subgroup passed the language arts component of the 1985 Grade 4 BST. Sixty-four of the 401 had received one year of compensatory/remedial services; the remaining 337 were two-year service recipients.

The mathematics performance of students in this group indicates that among the 490 students tracked through to the administration of the 1985 Grade 4 BST, 410 (83.67%) scored at or above the performance standard. Of the 490 students, 118 had received one year of compensatory/remedial services, and 372 had received two years of services.

Promoted 84; Promoted 85

The BST performance of 1983 grade 3 qualifiers promoted in successive years to grades 4 and 5 respectively, is shown in the fourth section of Table 9. Among the 834 language arts qualifiers, 350 (42.02%) passed the 1985 Grade 5 BST. Of the 834 students, 409 had received one year of compensatory/remedial services; the remaining 425 were two-year service recipients.

In mathematics, 904 of the 1,491 students tracked through to 1985 scored at or above the minimum performance standard (60.63%) on the Grade 5 BST. Among the 1,491 students, 933 had received one year of compensatory/remedial services; the other 558 had received two years of services.

## Promotion and BST Attainment History of 1983 Grade 3 Qualifiers

Data concerning the 1983-1985 BST results for students who initially qualified for compensatory/remedial services on the 1983 Grade 3 BST are presented in Figure 12. Among those students, 29 percent were retained in grade 3 for the 1983-84 school year. Upon being retested on the Grade 3 BST in 1984, 87 percent in language arts and 88 percent in mathematics met the grade 3 standards. For 1984-85, 3 percent were again retained, and 97 percent were promoted to grade 4. Ninety percent of those retained for a second time passed the language arts component; identical results were recorded in mathematics. Among those students who had been promoted to grade 4 for 1984-85, 75 percent attained the language arts standard, and 80 percent did likewise in mathematics.

BST results for the 71 percent who were unsuccessful on the 1983 Grade 3 BST and were promoted to grade 4 for 1984-85 are shown in the other half of Figure 12. When tested on the Grade 4 BST in 1984, 36 percent attained the language arts standard, and 51 percent attained the standard in mathematics. Twenty-five percent were retained in grade 4, and 75 percent were promoted to grade 5 for 1984-85. Among the retained students 76 percent were successful on the language arts component of the 1985 Grade 4 BST; 84 percent passed the mathematics component. Within the promoted group, 42 percent attained the language arts standard on the 1985 Grade 5 BST, and 61 percent attained the mathematics standard.

A summary of promotion rates across the school years involved indicates that 53.25 percent of these 1983 grade 3 compensatory/remedial qualifiers were never retained, 45.88 percent were retained once, and

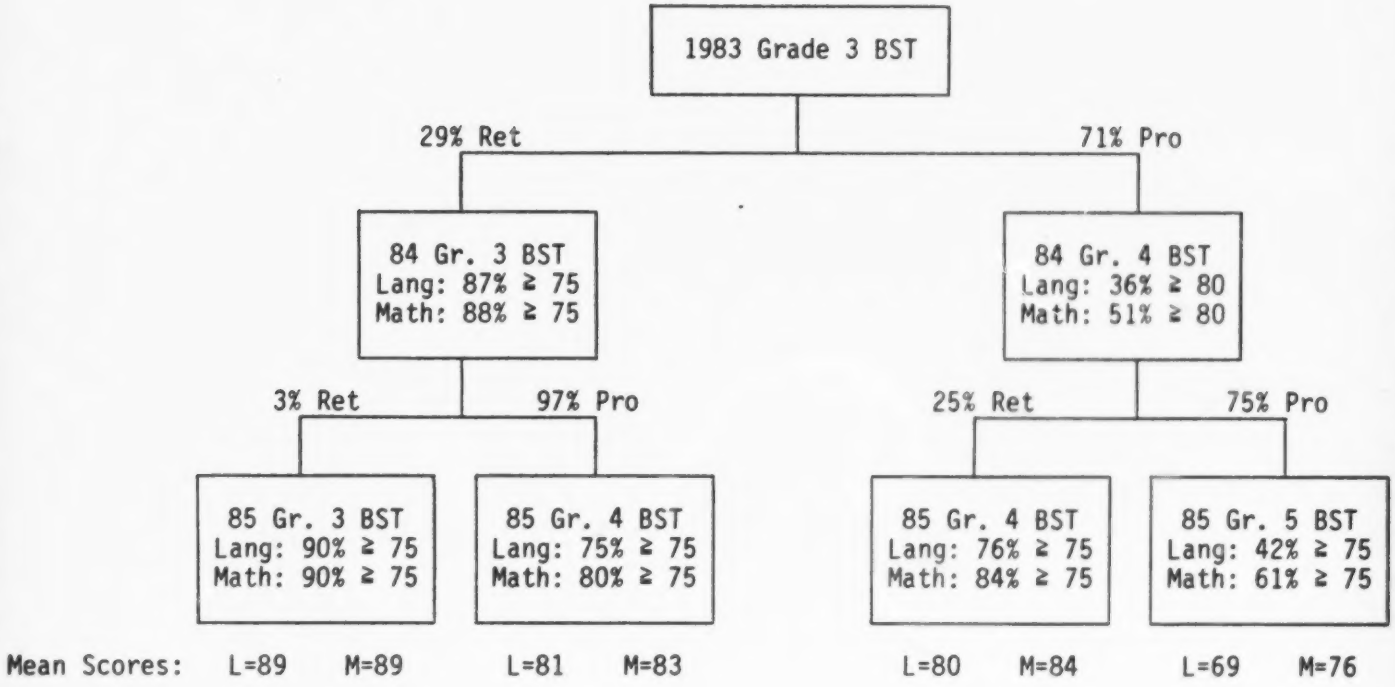


Figure 12. BST Attainment Rates for Initial 1983 Grade 3 Compensatory/Remedial Program Qualifiers

0.87 percent were retained twice. Comparisons of 1985 BST mean scores shown below each flowchart component indicate very similar results for the two subgroups tested on the Grade 4 BST in 1985. A more detailed examination of these data follows in the next section of this report.

## Comparison of 1985 Grade 4 BST Results Among 1983 Grade 3 Qualifiers

### Language Arts

Among the 1983 grade 3 compensatory/remedial qualifiers tracked through to the 1984-85 school year, two subgroups were enrolled in grade 4 in 1985 and thus tested on the Grade 4 BST during 1985. Students in both subgroups had been retained once and promoted once during the 1983-85 span, but the promotion/retention sequencing, as well as the number of years of compensatory/remedial services received, varied across the subgroups. Among the 1,114 initial language arts qualifiers, 713 had been retained in grade 3 for 1983-84 and then promoted to grade 4 for 1984-85 (RP). The other 401 had been initially promoted to grade 4 and then retained at that level for 1984-85 (PR). Across the 1,114 students in these two subgroups, 716 had received one year of compensatory/remedial services in language arts; the other 398 had received two years of services.

The effects of the varied promotion/retention patterns and the number of years of compensatory/remedial services received by language arts students in the two subgroups on 1985 Grade 4 BST performance were examined through an analysis of covariance procedure. The results are shown in Table 10. For all analyses, .05 was again used as the level of statistical significance.

As illustrated in Table 10, the statistical model incorporating

Table 10. Analysis of Covariance, Language Arts Performance of 1983 Grade 3 Compensatory/Remedial Program Qualifiers Who Took the Grade 4 BST in 1985
N=1114

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 3 | 33820.82 | 11273.61 | 72.60 | 0.0001* | 0.1640 |
| Error | 1110 | 172358.14 | 155.28 | - | - | - |
| Corrected Total | 1113 | 206178.97 | - | - | - | - |
| Student Category | 1 | 5854.28 | - | 37.70 | 0.0001* | - |
| Years C/R | 1 | 9987.58 | - | 64.32 | 0.0001* | - |
| 83 Grade 3 BST | 1 | 16515.95 | - | 106.36 | 0.0001* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. RP | 713 | 62.42 | 80.49 | 76.40 | RP vs. PR = 0.0001* |
| b. PR | 401 | 62.19 | 80.41 | 83.80 | - |
| Years C/R | | | | | |
| a. One | 716 | 63.52 | 82.41 | 84.99 | One vs. Two= 0.0001* |
| b. Two | 398 | 60.22 | 76.96 | 75.21 | - |

*Denotes significance beyond the .05 level.

student category (RP or PR) and number of years of compensatory/remedial services received (one or two), along with initial 1983 Grade 3 BST scores as the covariant was found to be significant ($PR < 0.0001$). However, the R-square of 0.1640 indicates that these factors account for only 16.40 percent of the variation in the 1985 BST scores.

Upon close examination of the model, student category, years of compensatory/remedial services received, and 83 Grade 3 BST scores were all found to be significant. Thus, all three factors had an effect on the 1985 Grade 4 BST scores.

The t-test procedure was again used to verify the significance of the differences observed in adjusted 1985 Grade 3 BST means among students by category (RP or PR) and by years of services received (one or two). The mean comparisons by student category indicated that the PR subgroup outperformed students in the RP subgroup. The recipients of one year of compensatory/remedial services were seen to outperform the two year service recipients. For both comparisons PR was less than 0.0001.

Mathematics

A similar analysis of covariance model was used to compare the 1985 Grade 4 BST mathematics performance of the two student subgroups who had initially qualified for mathematics services in 1983 and who were in grade 4 in 1985. Among the 724 such students for whom three years of data were available, 474 were in the RP category and the other 25 classified as PR. Of the total, 469 had received one year of compensatory/remedial services, and the other 255 had received two years of services.

The results of the procedure are shown in Table 11. The overall model was significant ($PR < 0.0001$) with the R-square value being 0.1368. The main effects of student category and years of compensatory/remedial services received, as well as the 83 Grade 3 BST score covariant were all found to be significant in the general model ($PRO < .0001$). The t-test procedure indicated that the PR students outperformed the RP students as measured by the adjusted 1985 Grade 4 BST scores. One-year service recipients were found to have outperformed the recipients of two years of services.

Evaluation Question 5: What were the longitudinal effects of the State-Funded Compensatory/Remedial Program on the 1985 BST performance of 1984 qualifiers?

Introduction

The third group of students for whom 1985 BST performance was examined after the receipt of compensatory/remedial services was that group who qualified for the program through the 1984 Grade 2, 3, and 4 BSTs. At each of the three grade levels, promoted and retained subgroups emerged for testing on the appropriate BSTs in 1985. The performance of these students is shown in Tables 12-14, with a summary flowchart being presented as Figure 13.

1984-85 BST Performance of Grade 2 Qualifiers

Retained 85

The 1984-85 BST performance of regular education compensatory/remedial students who initially qualified for grade 2 services on the 1984 BST and who were retained at that level for 1984-85 is shown in the

Table 11. Analysis of Covariance, Mathematics Performance of 1983 Grade 3 Compensatory/Remedial Program Qualifiers Who Took the Grade 4 BST in 1985
N=724

| Source | Degree of Freedom | Sum of Squares | Mean Square | F-Value | Probability Value | R-Square |
|---|---|---|---|---|---|---|
| Model | 3 | 16629.81 | 5543.27 | 38.05 | 0.0001* | 0.1368 |
| Error | 720 | 104903.52 | 145.70 | - | - | - |
| Corrected Total | 723 | 121533.33 | - | - | - | - |
| Student Category | 1 | 3725.62 | - | 25.57 | 0.0001* | - |
| Years C/R | 1 | 5820.82 | - | 39.95 | 0.0001* | - |
| 83 Grade 3 BST | 1 | 8237.24 | - | 56.54 | 0.0001* | - |

| Main Effects | No. of Students | 82 BST Mean | 85 BST Mean | Adjusted 85 BST Mean | Probability Valve |
|---|---|---|---|---|---|
| Student Category | | | | | |
| a. RP | 474 | 60.47 | 80.56 | 77.42 | RP vs. PR = 0.0001* |
| b. PR | 250 | 60.18 | 81.44 | 83.91 | - |
| Years C/R | | | | | |
| a. One | 469 | 61.28 | 82.49 | 84.73 | One vs. Two=0.0001* |
| b. Two | 255 | 58.70 | 77.87 | 76.60 | - |

*Denotes significance beyond the .05 level.

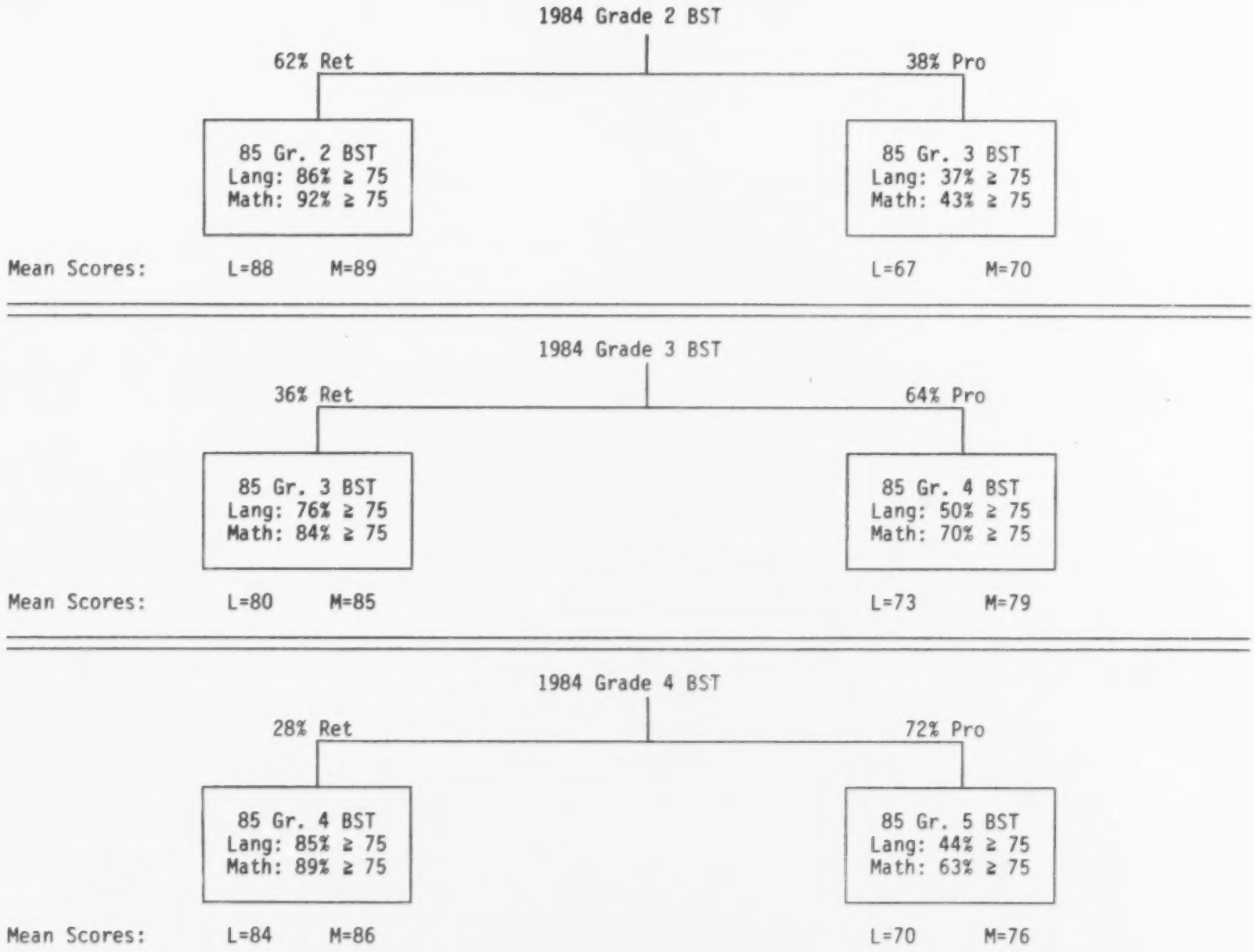


Figure 13. BST Attainment Rates for Initial 1984 Compensatory/Remedial Program Qualifiers: Grades 2-4

first section of Table 12. These students were tested on the Grade 2 BST for two successive years.

Among the 984 language arts students for whom complete data were available, 847 (86.08%) attained at least the minimum performance standard on the language arts component of the 1985 Grade 2 BST. In mathematics, 541 of the 588 students in this subgroup (92.00%) attained at least the minimum performance standard on the mathematics component of the 1985 Grade 2 BST.

Promoted 85

The second section of Table 12 illustrates the BST performance of 1984 grade 2 compensatory/remedial program qualifiers who were promoted to grade 3 during 1984-85. These students were tested on the Grade 2 BST during 1984 and then tested on the Grade 3 BST in 1985.

Among the 402 language arts qualifiers in this subgroup, 148 (36.82%) passed the language arts component of the 1985 Grade 3 BST. In mathematics, the attainment rate was 43.37 percent (180 of the 415 students tested).

1984-85 BST Performance of Grade 3 Qualifiers

Retained 85

The 1984-85 BST performance of 1984 grade 3 compensatory/remedial service qualifiers who were retained at that level for the 1984-85 school year is shown in Table 13. In language arts 802 of the 1,049 students in this subgroup (76.45%) scored at least the minimum performance standard on the 1985 Grade 3 BST. Mathematics results indicate that 1,057 of the 1,253 students in this subgroup (84.36%) passed the mathematics component.

Table 12. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 2 BST

| Student Group | LANGUAGE ARTS N | BST Mean | Scored ≥ 75 N | % | MATHEMATICS N | BST Mean | Scored ≥ 75 N | % |
|---|---|---|---|---|---|---|---|---|
| Ret 85 | | | | | | | | |
| 1984 Grade 2 BST | 988 | 61.30 | 0 | 0.00 | 591 | 61.82 | 0 | 0.00 |
| 1985 Grade 2 BST | 984 | 87.58 | 847 | 86.08 | 588 | 88.69 | 541 | 92.00 |
| Pro 85 | | | | | | | | |
| 1984 Grade 2 BST | 404 | 65.30 | 0 | 0.00 | 416 | 66.62 | 0 | 0.00 |
| 1985 Grade 3 BST | 402 | 66.50 | 148 | 36.82 | 415 | 69.77 | 180 | 43.37 |

Table 13. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 3 BST

| Student Group | LANGUAGE ARTS | | | | MATHEMATICS | | | |
|---|---|---|---|---|---|---|---|---|
| | N | BST Mean | Scored ≥ 75 N | Scored ≥ 75 % | N | BST Mean | Scored ≥ 75 N | Scored ≥ 75 % |
| Ret 85 | | | | | | | | |
| 1984 Grade 3 BST | 1053 | 58.66 | 0 | 0.00 | 1262 | 60.71 | 0 | 0.00 |
| 1985 Grade 3 BST | 1049 | 80.44 | 802 | 76.45 | 1253 | 84.58 | 1057 | 84.36 |
| Pro 85 | | | | | | | | |
| 1984 Grade 3 BST | 1090 | 65.51 | 0 | 0.00 | 2151 | 66.06 | 0 | 0.00 |
| 1985 Grade 4 BST | 1081 | 72.47 | 543 | 50.23 | 2145 | 79.08 | 1501 | 69.98 |

Promoted 85

Among the initial 1,081 1984 grade 3 language arts qualifiers promoted to grade 4 for 1984-85, 543 (50.23%) passed the language arts component of the 1985 Grade 4 BST. In mathematics, 1,501 of the 2,145 students in this subgroup (69.98%) attained at least the minimum.

1984-85 BST Performance of Grade 4 Qualifiers

Retained 85

Data relative to the 1984-85 BST performance of 1984 grade 4 compensatory/remedial qualifiers retained at that level in 1984-85 are presented in Table 14. In language arts, 1,141 of the 1,335 initial qualifiers (85.47%) scored at least the minimum performance standard on the 1985 Grade 4 BST. The mathematics results indicated that 1,185 of the 1,333 students in this subgroup (88.90%) passed the mathematics component of the examination.

Promoted 85

Among the 2,520 grade 4 language arts qualifiers promoted to grade 5 for 1984-85, 1,112 (44.13%) attained at least the minimum performance standard on the 1985 Grade 5 BST. In mathematics, 1,924 of the 3,076 students tested (62.55%) passed the mathematics component of the BST.

Summary of 1984-85 BST Attainment Rates for
1984 Compensatory/Remedial Program

Grade 2 Qualifiers

Summary flowcharts of the 1984-85 BST attainment rates of regular education students who initially qualified for compensatory/remedial services on the 1984 Grades 2-4 BSTs are shown in Figure 13. The 1985

Table 14. 1985 BST Performance of Regular Education Students Who Initially Qualified for Compensatory/Remedial Services on the 1984 Grade 4 BST

| Student Group | LANGUAGE ARTS | | | | MATHEMATICS | | | |
|---|---|---|---|---|---|---|---|---|
| | N | BST Mean | Scored ≥ 75 N | Scored ≥ 75 % | N | BST Mean | Scored ≥ 75 N | Scored ≥ 75 % |
| Ret 85 | | | | | | | | |
| 1984 Grade 4 BST | 1341 | 64.43 | 0 | 0.00 | 1342 | 64.51 | 0 | 0.00 |
| 1985 Grade 4 BST | 1335 | 83.81 | 1141 | 85.47 | 1333 | 85.89 | 1185 | 88.90 |
| Pro 85 | | | | | | | | |
| 1984 Grade 4 BST | 2527 | 69.50 | 0 | 0.00 | 3085 | 70.11 | 0 | 0.00 |
| 1985 Grade 5 BST | 2520 | 70.43 | 1112 | 44.13 | 3076 | 76.45 | 1924 | 62.55 |

mean scores are shown below each flowchart component for the subgroup tested in language arts (L) and mathematics (M).

As illustrated in the first flowchart in Figure 13, among the initial grade 2 students who failed to attain the minimum performance standard on the 1984 Grade 2 BST and thus qualified for compensatory/ remedial services during the 1984-85 school year, 62 percent were retained in grade 2 for 1984-85, and 38 percent were promoted to grade 3.

During the spring of 1985 the retained group again took the Grade 2 BST. Among the recipients of language arts services, 86 percent attained the minimum performance standard; the attainment rate among the recipients of grade 2 mathematics services was 92 percent.

The grade 2 service qualifiers promoted for 1984-85 took the Grade 3 BST in the spring of 1985. Among the language arts students, 37 percent met the minimum standard on that component of the Grade 3 BST. The attainment rate among the mathematics qualifiers was 43 percent on the Grade 3 BST.

Grade 3 Qualifiers

The second flowchart illustrates the 1984-85 BST attainment rates of regular education students who initially qualified for compensatory/ remedial services on the 1984 Grade 3 BST. As illustrated, 36 percent of these students were retained in grade 3 for 1984-85, and 64 percent were promoted to grade 4. Both groups received grade 3 compensatory education during 1984-85 in addition to regular grade-level instruction.

The students in the retained group were retested on the Grade 3 BST in the spring of 1985. Among the language arts service recipients, 76

percent scored at least the minimum performance standard in that area; in mathematics, the attainment rate was 84 percent.

The grade 3 service qualifiers promoted for 1984-85 took the Grade 4 BST in the spring of 1985. Among the recipients of grade 3 language arts services, 50 percent scored at least the minimum performance standard; the attainment rate among the group who received grade 3 mathematics services was 70 percent.

Grade 4 Qualifiers

The third flowchart in Figure 12 presents the 1984-85 attainment rates for regular education students who qualified for compensatory/remedial services on the 1984 Grade 4 BST. Among the total, 28 percent were retained in grade 4 for 1984-85, and 72 percent were promoted.

Among the language arts qualifiers retested on the Grade 4 BST in 1985, 85 percent scored at least the minimum performance standard. In mathematics, 89 percent scored at least the minimum.

The language arts attainment rate among the 1984 grade 4 qualifiers promoted to grade 5 in 1984-85 was 44 percent on the Grade 5 BST. Among the mathematics qualifiers in this subgroup, the rate was 63 percent.

## DISCUSSION OF THE RESULTS

Examination of the BST results since the initiation of the testing program in 1982 indicates that the scores in both language arts and mathematics have changed very little over the years. Slight gains were shown from 1982 to 1984, but the 1985 results reflect a small decline in the scores. A larger number of students were tested this year than in previous years; whether this increase had an effect on BST scores cannot be determined. The number of students qualifying for compensatory/remedial services over the years also dropped slightly since 1982 but increased in 1985, consistent with the observed trend in BST scores (the higher the average score, the fewer students who fail the test).

Among the students who first qualified for the State-Funded Compensatory/Remedial Program through the 1982 Grade 2 BST and for whom three years of longitudinal data were available, several observations can be made. Students within this group who were retained during 1982-83 received both compensatory/remedial instruction in their deficient grade 2 skills and repeated classroom grade 2 instruction. When retested on the Grade 2 BST in 1983, more than 90 percent passed the exam. By 1985, 74 percent of the students in this group who were initially retained needed no compensatory education beyond that first year.

However, among the initial 1982 qualifiers who were promoted to

grade 3 in 1982-83 and who had received compensatory/remedial services in grade 2 skills concurrently with grade 3 regular instruction during that year, only 40 percent were successful on the 1983 Grade 3 BST. Furthermore, when tracked to 1985, only 29 percent of these students had required only a single year of compensatory education to that point; the other 71 percent had received two or three years of services by 1985. These results indicate that, at least in number of years of compensatory/remedial services ultimately required, retention immediately following failure on a BST is more advantageous than promotion.

When these initial 1982 program qualifiers were tracked to 1985, the performance comparisons among students tested on the same grade levels of the BST in 1985 yielded consistent results. Among the three subgroups who took the grade 3 BST in 1985 (all of whom had been retained twice since 1982), the performance of students initially promoted to grade 3 and then retained twice in that grade was found to be the best. However, all of the students in this highest group had received more than a single year of remedial services, meaning that they had failed the BST at least one more time since their initial failure in 1982. Among the initial qualifiers who took the Grade 4 BST in 1985 (all of whom had been retained once since 1982) those who had been promoted twice and then retained in grade 4 outperformed the others. However, 87 percent of these students had received two or three years of remedial services.

These findings are not so contradictory as they appear on the surface. Students who are retained in a grade and who receive compensatory education in the skills for that grade do better than

others when they are retested on the same level of the BST. However, students who are retained as soon as the BST identifies weaknesses in the basic skills are less likely to fail the BST and require remedial assistance in the future.

When the effect of years of compensatory/remedial services was examined apart from the effect of promotion or retention, students who had received only one year of services consistently outperformed the two-year and three-year recipients on the 1985 BST. Thus, considered alone, these results appear to contradict the earlier findings in that they seem to indicate that the fewer the number of years of compensatory/remedial services received, the better the basic skills performance of program participants. However, the lack of consistency between these results and those observed when years of services were considered in combination with promotion/retention sequence, underscore the impossibility of separating the effect of these two factors. Neither, taken alone, appears to be of sufficient strength to produce a consistent, measurable impact on subsequent BST performance. Finally, the statistical tests showed that only a small amount of the variation in students' 1985 BST scores could be explained by the amount of remediation students had received or the number of years they had been retained. Factors other than those examined had a considerable role in determining BST performance.

Among all 1982 qualifiers tracked to 1985, almost half required at least one additional year of compensatory/remedial services beyond the initial 1982-83 year. But, approximately 25 percent of the 1982 qualifiers had never been retained during the 1982-85 period, 66 percent had been retained once during that time, and 9 percent had been

retained twice. These results indicate that neither compensatory education nor retention alone has a substantial effect on subsequent basic skills performance. However, the results discussed earlier do suggest that, while retention and compensatory/remedial instruction contribute individually to the improved basic skills performance of children, the greatest impact occurs when the two occur concurrently.

# 3

## FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

### Findings and Conclusions

The major findings drawn from the information collected in the 1984-85 evaluation are presented here with the conclusions that are drawn from them.

Conclusion 1. The basic skills performance of Louisiana students has changed little over the four years in which the testing program has existed.

Finding: Average scores at each grade level typically increased in the year after that BST was introduced. There has also been a slight overall increase in average scores since 1982, although in 1985 scores declined slightly. There are several possible explanations for this small growth in observed performance. One possibility is that because the test measures the minimum standards, few students do not have high scores, and this leaves relatively little room to show growth at the upper end of test performance. A second possibility is that there may be a limit on the number of students who can realistically be expected to master the basic skills, and that the test scores indicate that this "performance ceiling" has been reached.

Finding: Since 1982 the percentage of students failing the BST (and thus qualifying for the State-Funded Compensatory/ Remedial Program) has dropped slightly until the current year, in which a slight increase was noted. Again, this could reflect some sort of ceiling on possible performance levels.

Conclusion 2. The BST plays a limited role in the decision to promote or retain students who have not mastered the minimum standards.

Finding: When the students who failed the Grade 2 BST in 1982 are tracked over the past four years, it appears that 25 percent were never retained during this period, 66 percent were retained once, and 9 percent were retained twice. But considerably more than 9 percent--about 50 percent, in fact --failed the BST two or more times during these four years.

Conclusion 3. The combination of retention and remediation does more to alleviate basic skills deficiencies than does either retention or remediation alone, and this combination is most effective early in the student's educational career.

Finding: Students who were retained immediately after their initial failure on the BST require fewer years of remedial services in the future. In looking at students who failed the 1982 BST and who were retained in 1982-83, one finds that about 74 percent did not fail the BST again during the four years that were studied. In contrast, among the students who failed the 1982 BST and were promoted, 71 percent had failed the BST at least one more time by 1985.

Finding: Regardless of whether students are retained after the first or second time they fail the BST, retention has a stronger effect on student performance on the very next BST than it does on later tests. In almost every case the best 1985 BST performance was observed among students who had most recently been retained and had thus received an additional year of classroom instruction in the skills measured by the 1985 BST.

The two findings above seem somewhat contradictory, but a little reflection shows that they are not. They simply display two different aspects of the retention and remediation effect. Students who were retained (many of whom also received compensatory education) in 1984-85 had the highest scores of all groups on the 1985 BST: these students had just completed at least two years of instruction in the skills upon which they were tested. Students who were retained upon failing the BST in 1982 did not necessarily have the highest 1985 BST scores, but they were less likely to have a history of repeated BST failures. To make a rough analogy, deciding when to retain students is a bit like deciding when to repair a house. Correcting a problem as soon as it is noticed forestalls future trouble, while waiting until the problem has grown large produces more noticeable results. In order to both improve future performance and lessen the likelihood that a student will fail to attain the minimum standards in the future, retention as soon as basic skills problems are identified is more effective.

Finding: When students who first qualified for remedial services in 1982 were examined, those who had received only one year of program services outperformed those who had received two or three years. This could be the result of two factors acting singly or in combination. First, it could reflect the effectiveness of early remediation (particularly when this is coupled with retention). Second, it could measure student ability, on the argument that repeated BST failure identifies less able students.

## Recommendations

The recommendations given here are based upon the data in this report and upon the cumulative findings of evaluative studies that have been conducted since the establishment of the State-Funded Compensatory/ Remedial Program in 1982.

- Local school systems should be strongly encouraged to retain students immediately following their first failure on the BST. This recommendation may require changing local pupil progression plans that limit the number of times a student can be retained in a given grade, but the evaluative data argue strongly that the combination of immediate retention and remediation is most effective in preventing future basic skills problems.

- If future economic conditions necessitate a hard decision about whether to withhold program funds for some students or to reduce per-pupil funding so much that the program becomes ineffective, program planners should first consider exempting students who are retained or who receive remedial services through some other program. Under no circumstances should funds be withheld for students who fail the BST and are promoted. Again, if future funding limitations mean that some students who fail the BST are not served by a compensatory education teacher, procedures must be established to ensure that these students receive individualized instruction in their deficient skills from their classroom or other teachers.

- Current program guidelines should be changed to allow and encourage local school systems to address an expanded continuum of skills that goes beyond the deficiencies identified on the BST that a student has failed. In addition to these identified skills and their prerequisites, compensatory education teachers should focus upon skills required for the student to succeed in the classroom and on future BST administrations. This is particularly crucial for students who have been promoted upon failing the BST and who now have about a 50-50 chance of passing the test the following spring.

- Students participating in compensatory education should be provided with the full 70 hours of remediation funded by the program. Moreover, exit testing for the program should measure the full range of skills addressed during remediation. Current practice allows a student to be tested on an isolated skill as soon as it has been taught and to be exited as soon as he or she has shown mastery of identified deficient skills. These practices ignore the possibility that a student may forget skills within a few days after they have been taught.

- The Department of Education and the State Board of Elementary and Secondary Education should initiate a study directed toward the development of alternative programs for students whose repeated

failure of the BST indicates a continuing difficulty in mastering the minimum standards. This is a small number of students, but as they move through the educational system their needs become more pronounced. The coming year has already identified logistical and psychological problems in providing services to students who have entered the departmentalized world of middle schools and junior high school.

- The Bureau of Elementary Education should call upon the state's four years of experience in the basic skills and compensatory/remedial programs to develop program models for remedial instruction. Working with local school system staffs, the Bureau should explore, test, and disseminate the curricula, materials, instructional methods, and administrative procedures that have been shown to be most effective for correcting basic skills deficiencies.